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development

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(Unless otherwise indicated,
currency is expressed in US dollars.)

NETWORK ANALYSIS

DEVELOPMENT PROJECT FORMATS A DESIGN FOR MAXIMUM INFORMATION

Eugene Grasberg

[Networks, in planning, can be compared to blueprints, in engineering. Their use can speed implementation, help to avoid waste, and facilitate meaningful cost accounting, better allocation of personnel, pinpointing of supply bottlenecks, and much more. This article applies network analysis to two typical development projects—an irrigation system and a literacy campaign.]

A country's development plan will typically contain a large number of projects, each of them involving a variety of inputs, material and human. The format in which these projects are presented can have an important bearing on the efficiency with which they are carried out.

Ideally, a project format should enable planners to aggregate the demands of all projects for specific strategic inputs, so that potential bottlenecks in materials, skills, and foreign exchange can be identified in advance and implementation schedules rephased as necessary. In order that it be truly serviceable in all aspects of the implementation of a project, a format should also:

- 1) allow for better scheduling of activities by management, and easy scheduling of orders for materials, supplies, equipment, and contractual services to the end of efficient implementation;
- 2) be such that, without laborious reformulations and recalculations, each project can be considered as a budget subheading (in the manner accepted in the "performance budgeting" now commonly advocated), subdivisible according to

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budgetary classifications as well as according to national accounting and labor classifications;

3) state each item of projected expenditure in a way that permits the project accountant and disbursing officer to use it as a clear criterion for approving or rejecting demands for funds during the actual implementation;

4) convey enough information to auditors and technical inspectors to enable them to use it as a standard against performance;

5) facilitate application of cost accounting, so that unit costs of standard activities can be calculated and compared with others in order to increase efficiency.

It is a sad waste of time and energy of scarce trained personnel if the information formulated for one stage of this process is not adaptable for use in other stages without difficult and time-consuming calculations. And yet, this is what much too often happens. In practice, many of the analytical operations highly recommended by the theory of planning and project-making are never performed. People simply never get around to them. Among these victims are rigorous cost accounting and calculations of impact on gross national product. Other operations, like annual budgeting, scheduling of financial flows, and identifying potential bottlenecks are improvised from documents which are not structured appropriately. The result is, at best, a great waste of skills; at worst, disastrous technical or financial breakdowns.

The aim of this study is to suggest a format for the presentation of economic development projects which would have as many of these uses as possible. The format proposed here would allow the same document to be used as an immediate source of data by economists/analysts, engineers, managers, and accountants at all stages of a project's progress, from conception through evaluation, acceptance, and implementation, and on to completion. It offers significant advantages for cost/benefit analysis, but it is most relevant for the analyses and decisions that are made after a project has been approved for implementation. It seeks to facilitate 1) programming—i. e., time-scheduling of detailed activities and applications of physical inputs; 2) assessing demand for particular scarce resources and thus identifying potential bottlenecks in advance; 3) evaluating the stream of nonrecurrent incomes originating in the execution of a project; and 4) measuring the cost-effectiveness of activities contained in the project.

It has the added advantage of being readily adaptable to automatic data-processing techniques, clearly the wave of the future. Not every developing country could start an automatic system today. But it is

both desirable and possible to design project formats in a way that, when the time is ripe, the structure of these documents and of the accounting associated with them, is ready for automatic handling.

Grouping Inputs by Activities

During the past decade, almost universal recognition has been accorded to the principle of structuring project documents in terms of activities, expressed as sets of inputs (goods and services) related to an operationally defined intermediate or final purpose. A project is here defined as a unit of governmental activity 1) forming a distinct subject of responsibility which can be assigned to a person or agency; and 2) capable of having its own accounting.

The most outstanding application of this way of structuring projects is the Program Evaluation Review Technique (PERT), a method which, in its many variants, now dominates the field of project management. An important advance in budgeting systems, the "Planning-Programming-Budgeting System (PPBS) developed by the US Bureau of the Budget, also bases its philosophy on grouping costs in relation to their operational purposes.

The first step in structuring the complex mass of inputs that will be absorbed by implementation of any project is to identify three fundamental groups of activities. Any effort and any material product involved must fall into one of them:

- 1) Direct activities
- 2) Service activities
- 3) Management activities

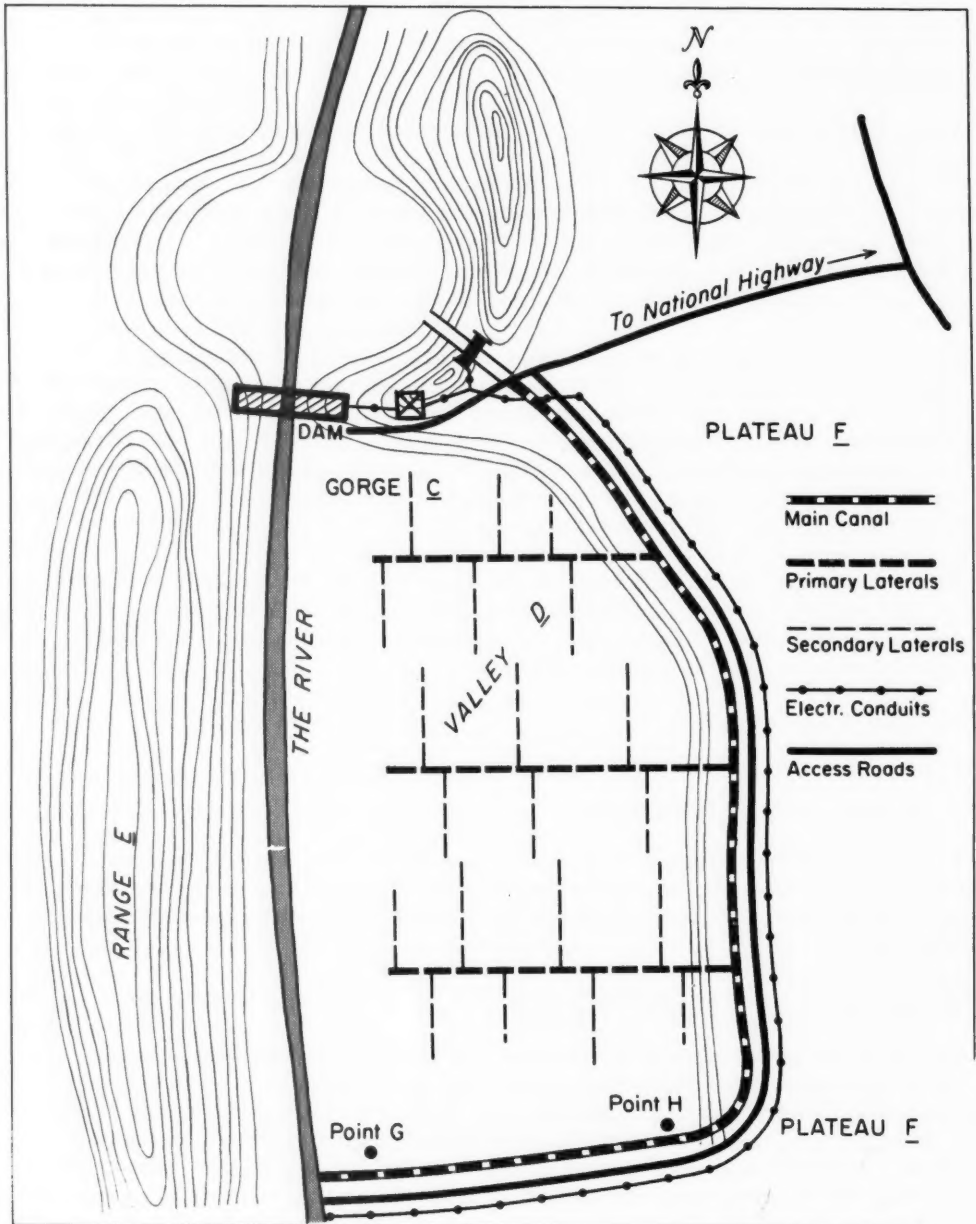
Two simplified examples are presented here to clarify the application of these principles to typical development projects—one, an irrigation project, results in durable assets; the other is a literacy campaign.

Project Resulting in Durable Assets

In projects of this type, direct activities are defined as the elements and sub-elements of the assets to be created. The division starts from the highest technologically and organizationally meaningful summary level; it then descends through intermediate levels to the detail of ultimate work packages into which the project management sees fit to program the tasks of execution.

Let us suppose, for example, that an irrigation program is approved for Valley A of some developing country. Its major components are illustrated on the following map.

THE PROPOSED IRRIGATION PROJECT



There will be four direct activities for this irrigation project on the highest summary level:

- Direct Activity 1.1 Reservoir system
1.2 Water transmission system
1.3 Electric power system
1.4 Access roads

It is easy to see how activities of the next summary level can in turn be identified by the component parts of the major items. For example, direct activity 1.1 can be subdivided as follows:

Direct Activity 1.10 Reservoir system

- Direct Activity 1.11 Land improvement (profiling and stabilizing the slopes above and below the expected water level)
" " 1.12 Storage dam
" " 1.13 Outlet and primary gate (for releasing water into the canal system)
" " 1.14 Temporary diversion channel (to permit construction of the dam across the permanent river bed)
" " 1.15 Filling reservoir with water
" " 1.16 Testing the whole system

In turn, on the next summary level, we can distinguish still more detailed components:

Direct Activity 1.100 Reservoir system

Direct Activity 1.110 Land improvement

- Direct Activity 1.111 Profiling the slopes
" " 1.112 Stabilizing certain rocks on the slopes by cementing, etc.
" " 1.113 Stabilizing soft slopes by planting trees and bushes

There is no need for further elaboration. It should be quite clear that the grouping of activities on successive summary levels permits an uninterrupted chain of technological and organized subdivision from the most general definition of the project, at one extreme, to the lowest identifiable work package, at the other.

Service activities. In contrast to direct activities, those in the service group are defined by their function in the process of implementing the whole project. A typical service activity will be the supply of electricity, by means of a temporary power plant and transmission-distribution lines of the construction site, for power-driven construction equipment, general lighting, and temporary offices of construction supervisors. In a project's cost-accounting system, the cost of these activities will be pro-rated among the direct activities on the basis of the government's usual criteria.

Service activities must be conceptually separated from one another, and, above all, from direct activities. Their correct programming and successful implementation are necessary conditions for programming and implementing direct activities.

A relatively short list will cover most service activities relevant for the implementation of a great majority of projects in all important branches of public-sector development projects:

- operation and maintenance of stores and final disposal of unused supplies;
- operation, maintenance, and disposal of the temporary production plant (stone crushers, concrete mixers, etc.) and repair shops;
- operation and maintenance of other equipment;
- operation and maintenance of general facilities (temporary offices, construction workers' camps, kitchens, heating and lighting plants, incinerators, etc.);
- transportation and communication;
- temporary roads and improvements;
- maintenance of general property (lands and structures on the site which are not used in project implementation but which will remain the property of the project once it is completed);
- construction, wreckage, and salvage of temporary structures involved in all the above-mentioned service activities.

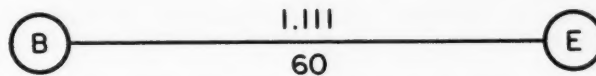
These service activities can obviously be divided into component activities on lower summary levels.

Management activities. The purpose of management activities is to assure that implementation is successfully achieved. Their importance is well known, and an extensive literature describes their content. Management activities, like others, absorb inputs, especially the services of highly skilled personnel. For accounting purposes, they are pro-rated in the same way as service activities.

Programming Networks

Once activities have been correctly grouped, the next step is to present the relationships among the various activities by means of a network or diagram.

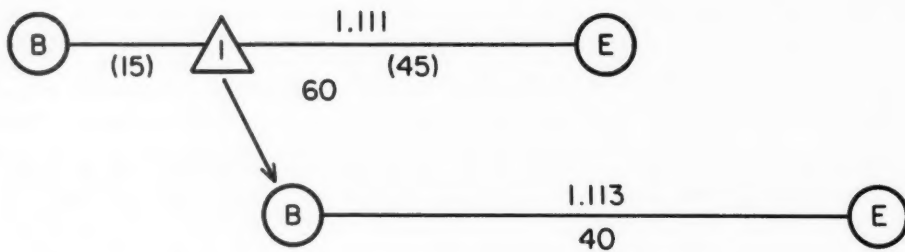
Each activity is represented by a straight line, limited by B and E, for beginning and end. The length of the line does not correspond to the time interval taken by the activity; it is dictated purely by convenience. The length of time the activity will probably take is usually noted in small figures below the line. Thus, for example, direct activity 1.111, "profiling the slopes of the reservoir," assumed to take 60 days, will be represented as follows:



When one activity can be started only after another has ended, their relationship is indicated by an arrow. [The arrow of our diagram corresponds to "dummy activity" in PERT parlance.] For example, activity 1.113, "stabilizing soft slopes" (40 days), can take place only after activity 1.111, "profiling the slopes (60 days), is accomplished. This is shown thus:



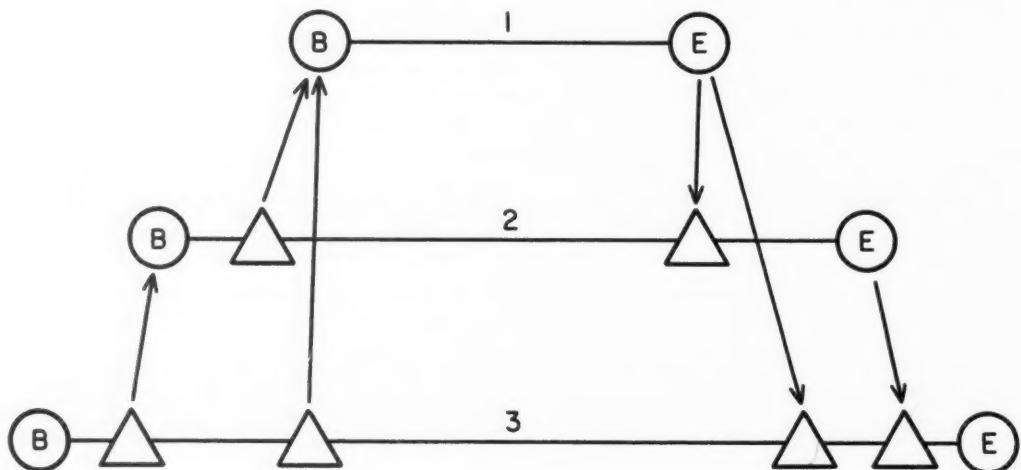
In some cases, an activity can start when another is only partly finished. Suppose, for example, that by the 15th day of profiling (activity 1.111) a certain eroded ravine will be filled with heavy rock and terraced, and that this will allow the stabilizing (activity 1.113) to start. We shall call that stage a "milestone" and indicate it by a triangle. Thus, if the code number of our milestone is taken to be 1, the new graphic configuration will be as follows:



We can now start sketching our network of activities for implementing the proposed irrigation system. Following accepted practice, we will disregard, for the moment, the time-lengths of various activities and concentrate, rather, on establishing clearly the causal order necessitated by technological and topographical considerations.

The sequential relations between the direct, service, and management activities on the highest (one-digit) summary level are easily established:

Figure 1



Even this simple presentation calls our attention to the fundamental truisms that at least some service activities must precede the beginning of direct activities; that service activities cannot be entirely terminated until all direct activities are ended; that certain management activities must be under way for any other activity to begin, and that, in turn, certain management activities cannot end until all other activities are fully terminated. These statements are so evident that they are easily forgotten in practice, with deplorable results for the execution of projects and for the morale of all concerned.

Let us now turn to the direct activities of our irrigation project. Even the next (two-digit) summary level reveals some crucial sequential relationships (see figure 2).

First, we notice that completion of various stages of activity 1.4 (access roads) must precede execution of other activities. Clearly, any delay in this activity would snowball into delays in all the others. Milestones 1, 2, and 3 mark the stages of road completion prerequisite to the beginning of work on the reservoir system, the electric system, and the water-transmission system. The water transmission system cannot be finished, furthermore, until the road paralleling the canal is completed so that the junction of the canal with the river can be executed.

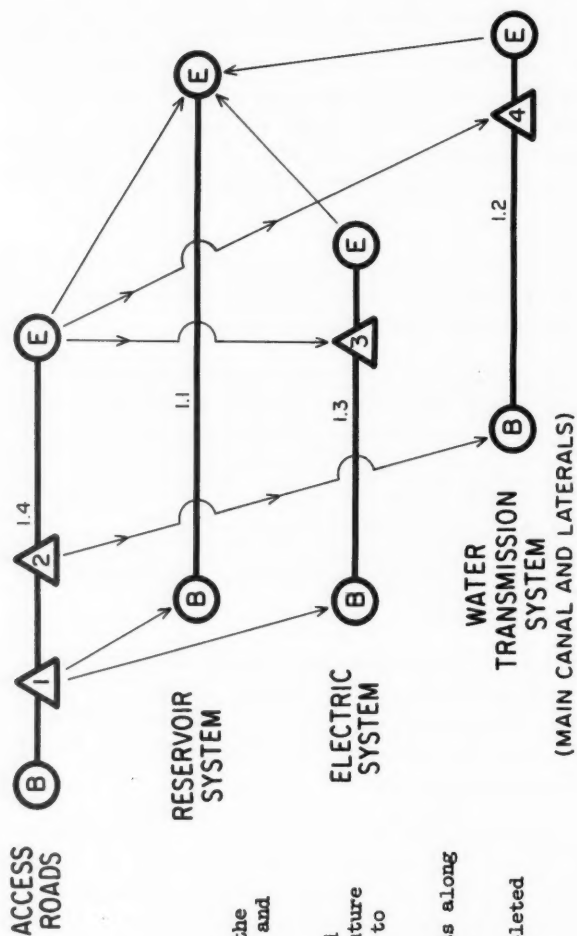
Second, it is obvious that the reservoir (activity 1.1), the canal, and the laterals (activity 1.2) cannot be made operational until the electric power system (activity 1.3) is completed, power being needed to operate the spillway on the dam and the outlet gate, and to illuminate the primary canal.

At the next lower levels, some new, important interrelationships appear (see figure 3). Apart from the role of the access roads, we notice another constraint: the crucial importance of the work on the diversion channel (1.141). Work on the dam, the fundamental element of the whole system, cannot be started until the river has been temporarily redirected. Nor can the system be made operational until the diversion channel has been obliterated (1.142), which in turn requires completing the outlet gate (1.13). Finally, the dam and the outlet gate cannot be considered operational until the power plant (1.31) and transmission lines (1.32 and 1.33) are ready, so that power is available for regulating the flow of the river.

We shall not carry this analysis further. Our network already shows the tremendous importance of proper synchronization of component activities if waste of resources is to be avoided—especially those of skilled manpower and perishable materials (think only of cement storage in damp tropical regions!). The networks also show

(continued page 13)

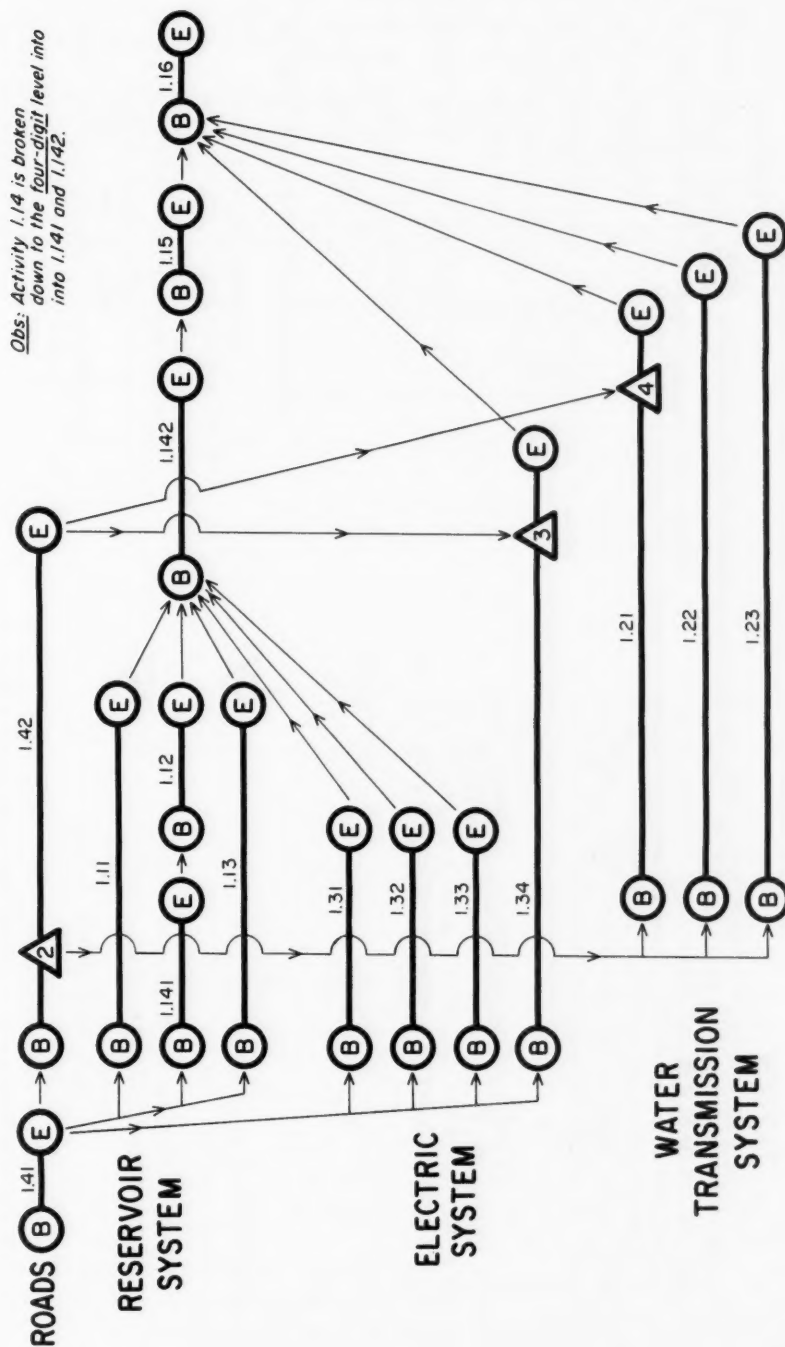
FIGURE 2.
DIRECT ACTIVITIES IN THE IRRIGATION PROJECT
TWO-DIGIT-LEVEL NETWORK



MILESTONES

- 1 Road reaches the area of the future dam, electr. plant and outlet
- 2 Road sufficiently advanced along the course of the future main canal to permit work to start on the canal
- 3 90% of the electr. conduits along the main canal completed
- 4 90% of the main canal completed

FIGURE 3.
DIRECT ACTIVITIES IN THE IRRIGATION PROJECT
THREE-DIGIT-LEVEL NETWORK



EXPLANATIONS TO FIGURE 3

1.1 RESERVOIR SYSTEM

- 1.11 Land improvement
- 1.12 Storage dam
- 1.13 Outlet and primary gate
- 1.14 Diversion channel (temporary)
 - 1.141 construction
 - 1.142 obliteration
- 1.15 Filling reservoir with water
- 1.16 Testing and adjusting the system (including coordination with the functioning of the main canal and the laterals)

1.2 WATER TRANSMISSION SYSTEM

- 1.21 Main canal
- 1.22 Primary laterals
- 1.23 Secondary laterals




1.3 ELECTRIC POWER SYSTEM

- 1.31 Power plant
- 1.32 Transmission to the dam
- 1.33 Transmission to the outlet gate
- 1.34 Transmission along the main canal




1.4 ACCESS ROADS

- 1.41 From national highway to the dam-outlet-power plant area
- 1.42 From above area, along the main canal to its junction with the river

MILESTONES

-  (as in Figure 2): Road 1.42 sufficiently advanced to permit work to start on the main canal and on the electric conduit along it
-  ----- 90% of activity 1.34 (electric conduit along the main canal) completed
-  ----- 90% of activity 1.21 (main canal) completed.

OBSERVE:

- 1) Milestone 1, which appeared in Figure 2, does not appear in Figure 3 because, when a distinction is made between the two roads (1.41 and 1.42), this milestone is replaced by the  and of road 1.41
- 2) The meaning of arrows between the  and of 1.42 and  is that the construction of the road along the canal must be at all times sufficiently ahead (10%) of the construction of the canal itself and of the electric conduit along it in order to afford a margin of safety for an uninterrupted execution of the two latter activities

with striking clarity the importance of timely procurement of inputs, and they help to identify the strategic points where a shortage of inputs might paralyze the entire project.

Service activities are treated similarly. We shall not here proceed beyond the two-digit summary level, where four activities can be distinguished:

2.1 General facilities: office space, workers' quarters, light, heating, security, etc. (operation and maintenance).

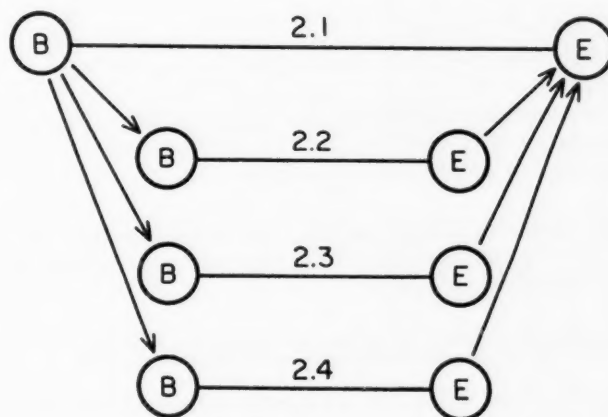
2.2 Equipment: earthmoving, construction, transportation, etc. (O&M).

2.3 Stores of supplies, materials, and spare parts (O&M).

2.4 Production plant and shops: rock-crushing, concrete-mixing, repairs, etc. (O&M).

Figure 4 shows the simple network of relationships within this group.

Figure 4



One dependent relation is obvious: some of the general facilities (a minimum of office space, living quarters, utilities, security, etc.) must be operating in order for other service activities to

start. Also, a minimum of general facilities must outlast, at least for a short while, the completion of other activities, so that the whole service role can be terminated neatly.

The simplicity of the two-digit-level network does not preclude, of course, the existence of much more complex relationships on lower summary levels. For example, the sub-network of setting up the temporary production plant and shops (2.4) should surely contain a number of tight sequences.

Management activities will here be treated as a simple activity—i.e., on the one-digit level—although they, too, are susceptible to networking. The basic branches of management activity might include, for example:

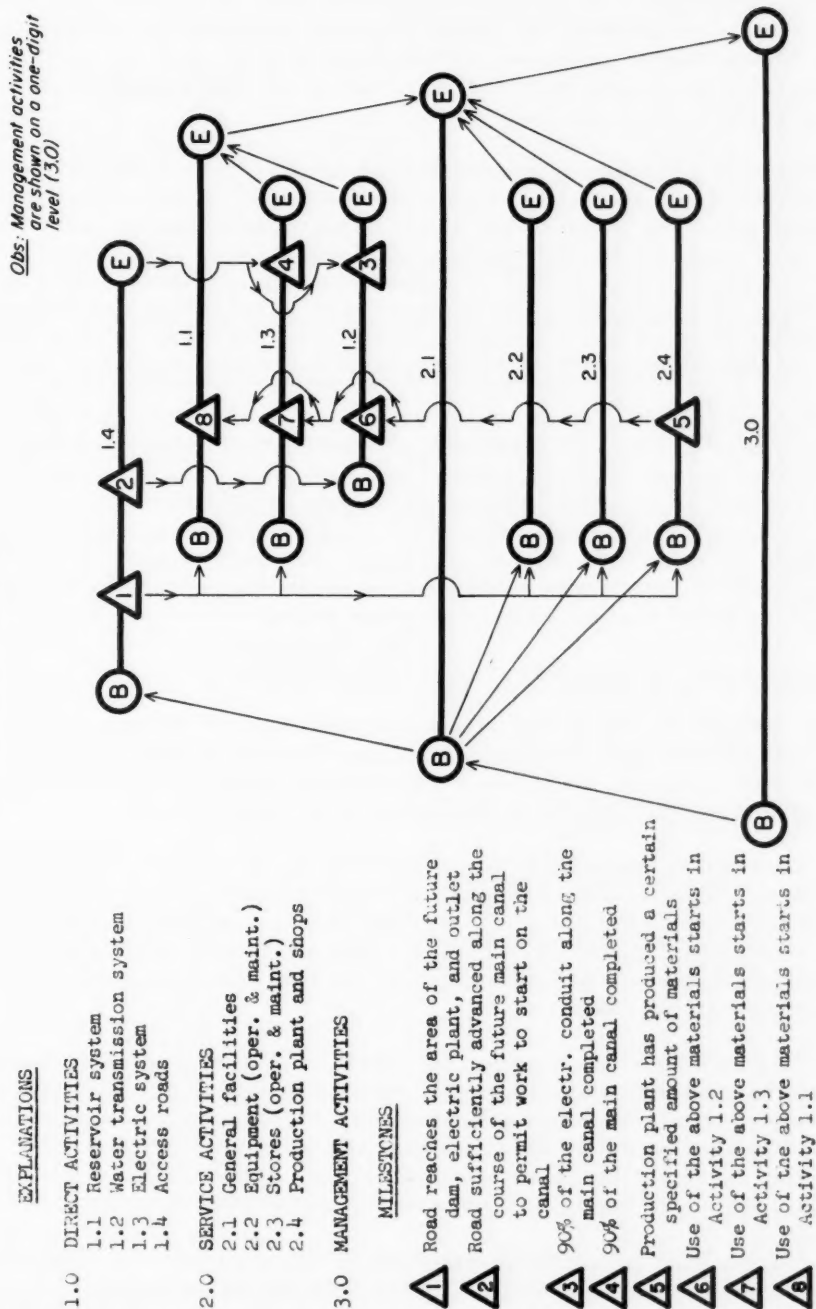
- defining the contents of the project;
- programming;
- establishing the hierarchy of responsibility at all levels;
- establishing standards of work-force performance;
- establishing the system of collecting, processing, evaluating, circulating, and storing data related to implementation;
- assuring ready availability of factors of production;
- liaison: activities to assure communication and cooperation with outside agencies and persons;
- establishing standards of quality and quantity, minimizing wastage;
- assuring employee morale;
- protection against loss and damages;
- internal audit;
- activities to assure satisfactory transfer of authority and responsibilities when the project is completed;
- activities to make evaluation possible.

Figure 5 represents an integration, on the two-digit level, of all three major activity groups—direct, service, and management—composing the irrigation project.

Programming Networks for Campaign-Type Projects

There is a very broad class of projects bearing the characteristics of a campaign. Typical examples are: a literacy campaign, an anti-malaria program, a drive to introduce a new agricultural or marketing practice, introduction of a cadastral survey to clarify land titles, etc. While a line between projects and on-going activities of government agencies is difficult to draw, "projects" are usually nonrepetitive, (aiming at a more-or-less dramatic breakthrough) and have special organizational arrangements, usually formalized by a separate chain of command headed by a "project director" or his equivalent.

FIGURE 5.
INTEGRATED NETWORK OF THE IRRIGATION PROJECT
TWO-DIGIT LEVEL



Practically all projects of this type involve intensive application of special skills in a human environment where ignorance, misconceptions, and often generations-old emotional grievances may cause suspicion and even hostility toward the project workers; hence the importance of good personnel and the right psychological approach in their dealings with the beneficiaries of the project.

Figure 6 presents a programming network for a typical project of this type: a literacy campaign. Its principal direct activities are: motivation of the population; the teaching campaign proper; consolidation of results through prizes, diplomas, etc. The service activities contain: procurement of materials and supplies; training courses for campaign personnel; various phases of logistics and transportation for both service and direct activities. Several crucial sequential relationships between various activities can be observed.

Most of the comments which have been made earlier with respect to networks of projects resulting in permanent physical assets are also valid for projects of the campaign type. In fact, as far as the programming of implementation is concerned, very little formal difference exists between the two. The main substantial difference is in the kinds of inputs that are used: the permanent-assets projects demand, of course, many more material inputs, while campaigns demand mainly skilled service inputs.

Project Considered as Part of a Larger System

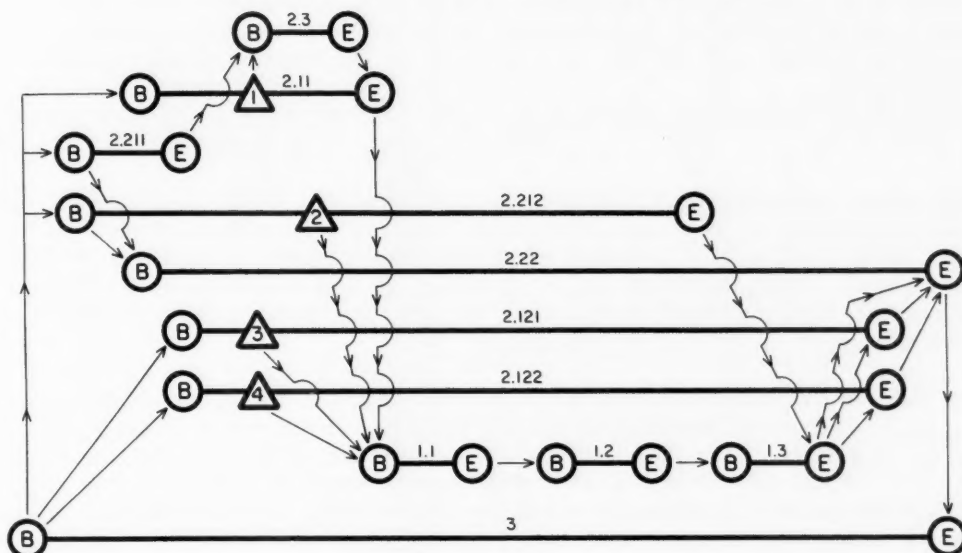
No project is an island, no project director a Robinson Crusoe. While it is true that the organizational boundary drawn around a project is a useful, efficiency-promoting device, it is equally true that the same project is imbedded in a broader fabric.

From its surrounding, a project draws its inputs, human and inanimate. On this surrounding, a project depends for fulfillment of the legal, socio-educational, and technical conditions that will make implementation possible. Finally, the surrounding must be capable of absorbing the completed project, so that the benefits it was meant to create can be realized.

For example, large projects, such as roads, irrigation and other water-resources projects, etc., often depend on the passage of special legislation concerning land titles, rights of way, compensation, etc. Uncertainties or delay in passage of such laws can play havoc with the most skillfully conceived project scheduling, especially where long lead-times are needed for procuring strategic equipment.

Another kind of extreme sensitivity arises when a whole new organization or division, including newly trained personnel, is required

FIGURE 6.
ACTIVITIES NETWORK FOR A LITERACY CAMPAIGN



EXPLANATION OF CODES

1.0 DIRECT ACTIVITIES

- 1.1 Motivation of population
- 1.2 Campaign proper (teaching)
- 1.3 Consolidation activities (diplomas, prizes, festivities, etc.)

2.000 SERVICE ACTIVITIES

- 2.100 Logistics
 - 2.11 Logistics for training of campaign personnel
 - 2.120 Logistics for the campaign proper
 - 2.121 Feeding and lodging the personnel
 - 2.122 Transport of men and materiel
- 2.200 Materiel
 - 2.210 Purchase, production, & assembly of materiel
 - 2.211 For training of personnel
 - 2.212 For the campaign proper
 - 2.22 Operation and Maintenance of Materiel
- 2.3 Training course for campaign personnel

3. MANAGEMENT ACTIVITIES

MILESTONES

- 1 Logistics sufficiently advanced to allow training course for personnel to start
- 2 Enough materiel assembled to allow the campaign to start
- 3 Feeding and lodging sufficiently prepared to allow the campaign to start
- 4 Transport sufficiently prepared to allow the campaign to start

in order to make use of the assets that have been created. Illustrating again by means of our irrigation project: the completed system will be worth little unless 1) the farmers have been trained to use it, 2) an organization has been created, and agents trained, to operate the system efficiently and equitably, and 3) an organization has assumed responsibility for maintaining the major assets of the system, controlling silting, etc. Clearly, these tasks go beyond simply building an irrigation project; they involve permanent management centers of agricultural extension, marketing, land use, resources, conservation, and so on.

The often antiquated legislative, administrative, and budgetary procedures of most countries, characterized by a lopsided interest in the "brick and mortar" aspect of development projects and a distressing lack of appreciation for programming and coordination, have hindered the development of effective devices for dealing with these formidable inter-systemic problems.

As any experienced project manager has learned by bitter experience, delays and bottlenecks on the borderline [in systems analysis, these borderlines, as well as those between parts of the project network, are known as "interfaces"] between the project and its surrounding (suppliers, contractors, local authorities, collaborating agencies, superior authorities, etc.) can be more difficult to cope with, and more damaging to a project, than difficulties originating internally.

Networking, although it cannot claim to solve all these difficulties, might at least serve to remind each agency of its role in the collaborative process. (Figure 7 gives a simple version of the relationship of our irrigation project to outside agencies.)

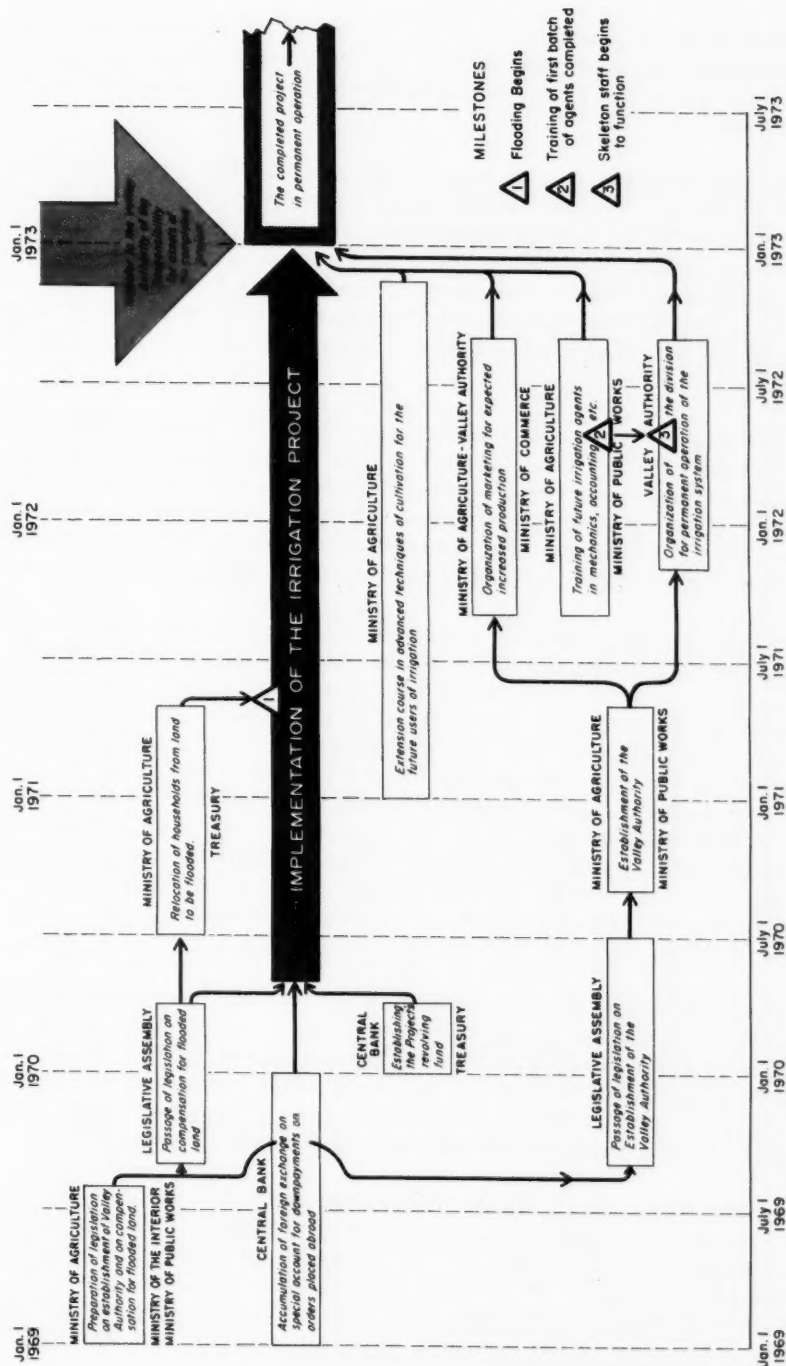
Estimating Time—The Critical Path

The networks discussed so far have been "qualitative," in the sense that they showed the consecutive order of conditions to be satisfied throughout the execution of the project. The next step is to determine the time values that ought to be assigned to each activity.

Within technological limits, these values are subject to the programmer's choice. An activity can be lengthened or shortened by greater or less use of a given mix of factors of production, or by altering the proportions among these factors. Thus, a stretch of road can be completed more quickly by making men and equipment work more hours per day, or by employing more men, or by using more equipment, or by any combination of these measures.

There is clearly a highly challenging maximization problem in determining the most appropriate time/resources pattern implied in

FIGURE 7.
INTEGRATED SYSTEMS NETWORK
IRRIGATION PROJECT AND SUPPORTING ACTIVITIES OF OUTSIDE AGENCIES



the programming of a project. For projects of substantial size, cost, and length of implementation, there are great economies to be achieved by a good program and great wastes to be caused by an ill-conceived one.

Let us imagine that the persons responsible for programming our irrigation project, having established the sequential order of activities, move now to the next stage of programming: the time-quantification of the network. Starting from as low a summary level as their experience would suggest, the probable length of execution of every activity is estimated and the appropriate number of working days posted on the diagram below the line corresponding to each activity.

Ideally, these estimates should be made in close collaboration with those who will bear the actual responsibility for executing the component activities on time. Their incentive to perform their tasks adequately will be greatly strengthened by the awareness that they were consulted on this crucial matter and that the whole program has been influenced by the contribution of their professional experience.

Fairly frequently, however, programming is undertaken before the personnel, who will actually be in charge, have been selected. In that case, time intervals must be estimated on the basis of the best available information. Feasibility studies, often prepared by independent consultants, can help somewhat. In most cases, however, these do not contain enough information to serve as a basis for tight and realistic programming. In the absence of the persons who will actually be responsible for execution, about the best that programmers can do is to consult all contactable professionals possessing appropriate skills and experience in order to arrive at their first estimates of time intervals needed for executing the component activities of the project.

The first estimate of time values will result in a network diagram identical in design with those shown previously. Figure 8, a diagram for the direct activities of our irrigation project on the three-digit level, is thus a reproduction of figure 3, with time values in numbers of working days added. Obviously, the same principle extends itself easily to the integrated network of the whole project.

Among the various recognizable sequences of direct activities, there is one in which the total of all time-lengths of activities forming it is longer than the total of any other sequence. (See table 1 and dotted line on figure 8.) Such a sequence is called the CRITICAL PATH. It determines the length of time that implementation of the direct activities of the project will take, given the dependent relationship between them.

FIGURE 8.
FIRST ESTIMATE OF TIME VALUES OF DIRECT ACTIVITIES
IN THE IRRIGATION PROJECT: THREE-DIGIT-LEVEL NETWORK

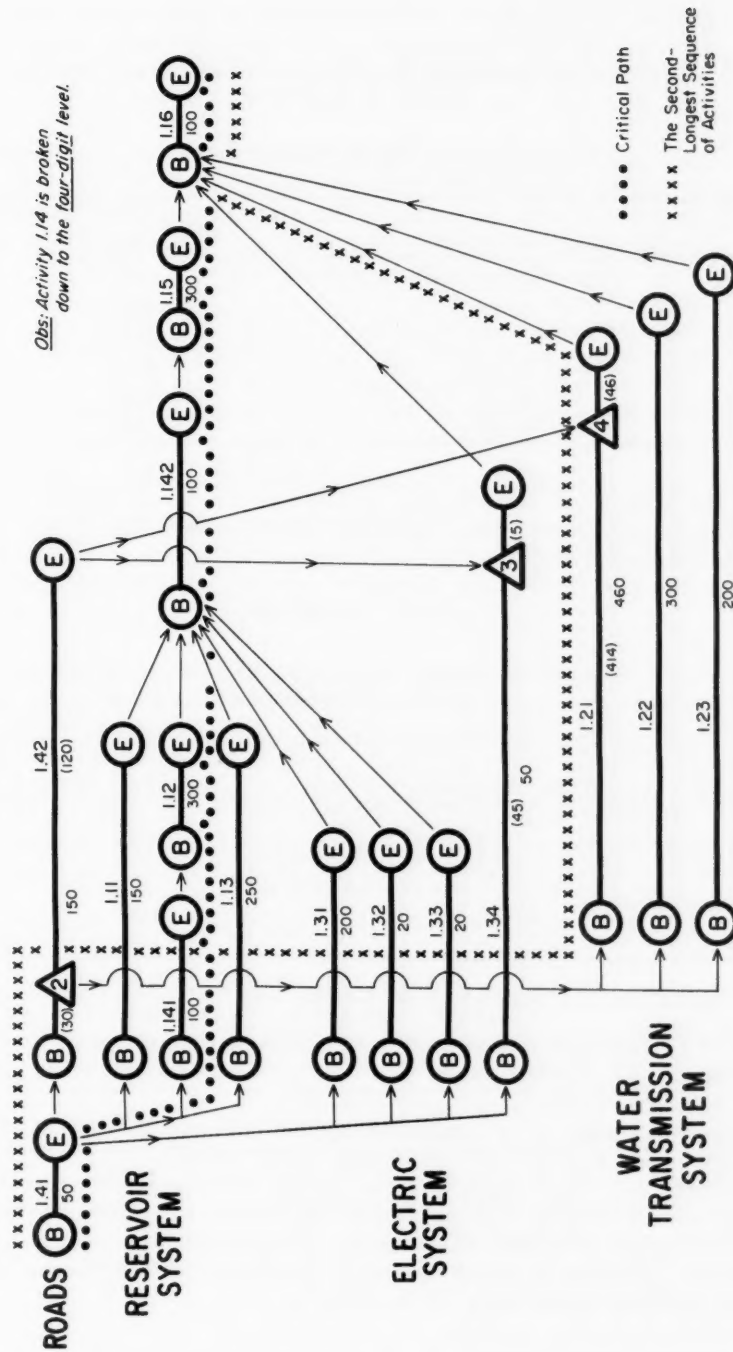


Table 1

The Longest Sequence of Direct Activities
in the Irrigation Project

"The Critical Path"

Activity Code	Time-Length in Working Days
1. 41	50
1. 141	100
1. 12	300
1. 142	100
1. 15	300
1. 16	100
Total 950 Days	

The second-longest sequence, shown on figure 8 by an x-ed line, is calculated below:

Table 2

Second-Longest Sequence of Direct Activities
in the Irrigation Project

Activity Code	Time-Length in Working Days
1. 41	50
1. 42 (from beginning to milestone 2)	30
1. 21	460
1. 16	100
Total 640 Days	

The difference between the critical path and any other sequence is called slack; in this case, 950 days minus 640 days—i. e., 310 days.

The existence of slack in this case means that the beginning of activity 1. 21 (construction of the main canal) in principle could be postponed by any length of time up to 310 days (after milestone 2, the precondition of this activity, has been reached) without delaying the execution of other activities. (In practice, external circumstances, such as a rainy season, could somewhat limit the theoretically perfect elasticity of the slack.)

The critical path itself cannot, by definition, contain any slack; the slack is measured with respect to it. All other sequences of activities will show various amounts of slack in comparison with the critical path.

A certain amount of slack is normal and unavoidable in any project for various reasons of technology, indivisibilities, seasonal patterns, etc. However, an abnormally large amount of slack—and what is "abnormal" can be decided only by experienced practitioners—would indicate the possibility of improved scheduling.

If one sequence of activities takes much less time than another, it is sometimes possible to achieve economies by diminishing the application of resources in the "short" sequences and increasing them in the "long," thus reducing the overall length of project implementation.

This kind of readjustment may go on as long as the management feels that gains in the efficiency of project implementation justify an additional expenditure of time and effort by skilled engineers and programmers (and perhaps a delay in initiating implementation because more time is being consumed by programming).

In the case now under consideration, the second-longest sequence could be reprogrammed to eliminate the excessive amount of slack. For example, men and machinery could be transferred from the work on the main canal (activity 1. 21) to the diversion channel (activities 1. 141 and 1. 142) and to dam construction (activity 1. 12). The second-longest sequence would then take more time (as we have seen, the slack allows that) but the critical path would be shortened. Table 3 shows the effect of such a re-programming.

Table 3

Re-programming of Critical Path and Second-Longest Sequence of Direct Activities in Irrigation Project
(compare with Tables 1 and 2)

"New" Critical Path		"New" Second-Longest Sequence	
Activity Code	Length: Days	Activity Code	Length: Days
1. 41	50	1. 41	50
1. 141	80	1. 42 (from beginning to milestone 2)	30
1. 12	260	1. 21	560
1. 142	80	1. 16	100
1. 15	300		
1. 16	100		
Total	870	Total	740

By stretching out the time taken to execute activity 1.21 by a hundred days and transferring part of the resources thus released, it becomes possible to shorten activities 1.141, 1.142, and 1.12 (and, therefore, the critical path) by a total of 80 days and thus speed up completion of the entire project.

A technical analysis of the network on figure 8 might reveal more such opportunities. For example, some resources could be transferred to activity 1.11 (land improvement of the reservoir), which enjoys considerable slack with respect to the part of the critical path formed by activities 1.141 (construction of the temporary diversion channel) and 1.12 (construction of the dam).

Sometimes, no amount of transferral of resources will shorten the critical path. This will be the case when the timing of a growing season governs the events of the critical path, when the work must await delivery of special machinery, when there are legal delays to passage of a new law, etc. In such situations, the slack may be taken advantage of by stretching out some activities in order to economize resources and/or to smooth out the schedule of financing.

The final version of the network, although identical in pattern with the first, will now correspond to the revised time intervals assigned to various activities. Its overall time-length may have been shortened or lengthened and, in the course of these shifts, the total amounts of inputs required for the project may also have changed.

The preceding explanation has related only to direct activities. It is equally applicable, of course, to all other activities, both service and management. In fact, the critical path for the whole project will, in most cases, move from certain management activities to activities in the service category to direct activities and thence back and forth before finally coming to rest at the end of management activities.

Modular Classification

It is a fact of great practical importance that, for almost all projects resulting in fixed assets, most activities can be easily identified by obvious and fairly typical classes of assets. A few types of fixed-assets systems constitute an overwhelming proportion of public-sector investment expenditures in most developing nations: flood control-irrigation-hydro power systems, water supply systems, sewerage systems, thermal power systems, roads, bridges, harbors, airports, communications systems, school buildings, public health buildings.

The same is true with respect to most industrial projects which, despite the bemusing variety of articles they are ultimately to produce, can be reduced to a very manageable number of standard

components. Thus, any industrial project will contain some or all of such basic "building blocks" as terrain improvement, basic buildings, water-and-power supply systems, heating and/or refrigeration systems, material-moving system, and a few others. Even the machinery and equipment used in industrial processing can be reduced to a limited number of basic functional classes, such as crushing, mixing, heating, drawing, drying, and so on.

Thus, 1) on the highest summary level—project description—a limited number of definitions exhaust the bulk of fixed-asset systems (water control and use, power production, transport, etc.); and 2) the same is true for the lower levels into which these summaries can be meaningfully broken down (canal, dam, road, building, etc.; and again, on a still lower level, earthwork, masonry, roofing, and so on).

The basic similarities among most projects of the campaign type permit them, too, to be expressed in a fairly limited number of activities. For example, a standard list of "building blocks" for campaign-type projects might include: Direct activities: 1) motivation—home visits; formal and informal talks; audiovisuals; inserts in press and radio; plays, dances, sing-songs; distribution of diplomas, prizes; 2) transfer of knowledge—lectures, demonstrations, field sessions, correspondence courses, home visits, etc.; 3) transfer of attitudes—organizing cooperative efforts such as digging a communal well, building a school, etc.; 4) medical activities—vaccination, distribution of medications, x-rays, tests, etc.; 5) accumulation of information—economic and legal data such as cadastral surveys, agricultural samplings, industrial census, etc.; sociological data regarding folklore, religion, etc.; geophysical data, including mapping, minerological surveys, etc. Service activities would include such typical categories as: transport; feeding and lodging of personnel; procurement of material and supplies, including transport; storage; maintenance; procurement of meeting halls; preparation of motivational and teaching material; printing, mimeographing, filming, etc.; motivation and training of project personnel.

In any event, campaigns often involve implementation of some fixed assets and vice versa. For example, community development campaigns will often leave behind wells, access roads, improved animal shelters, and so forth. And irrigation projects will contain campaign-type activities like educating the beneficiaries in proper water-use practices, etc. This mixture of fixed-assets results and no-fixed-assets results causes no difficulty either from the viewpoint of programming of inputs (PERT, etc.) or from the viewpoint of cost accounting. The strength of the proposed method of structuring project documents in terms of activities on various summary levels consists precisely in its ability to combine the most diverse kinds of activities into a unified whole, while preserving the analytical distinctions of functions, kinds of inputs, and timing.

The preponderance of typical activities in both fixed-asset and campaign projects offers immense advantages.

First, it permits an advance toward modular programming of an increasingly large number of development projects. "Modules," in systems management, are the standard components, or "building blocks," that reappear in project after project. As its technical skills grow and as the body of accounting and managerial experience derived from completed projects accumulates, it should become progressively easier for a developing country to establish a constantly up-to-date "library" of programming schedules for the more important and typical modules ("building blocks") which enter into the country's projects—one mile of access road on a plain, one mile in mountains, one mile of a typical highway, a culvert, etc. Observe that such modules imply much more than just standard unit cost: they indicate the physical inputs and their timing. As a result, one can expect considerable savings of time and effort for programmers who, operating with pre-programmed modules, will be spared the need to start from elementary calculations over and over again for every project they begin.

Second, meaningful cost-accounting comparisons can be made for typical unit costs between different parts of a complex project and between various projects. This comparing of performance on one project with that on another is a key element in every drive for efficiency; its role in public accounting and auditing is beyond need of explanation.

Furthermore, a compatibility can be established between physical programming and accounting, especially the cost accounting of standard items. The cost of implementing various activities on different levels can be progressively and automatically registered on appropriate accounts. The actual timing of inputs applied to activities can easily be compared with the programmed schedules, and efficiency of implementation can be estimated while the work is still in progress. Thus, the frictions and difficulties that commonly arise from lack of compatible definitional structures between the technical and accounting aims of a project can be avoided.

The Fiscal and Financial Branch of the Department of Economic and Social Affairs of the United Nations has been developing an important body of principles in budgetary classification and management with the objective of introducing a uniform international system of program and performance budgeting. A conceptual basis has thus been laid for the next logical step—a uniform system of project programming and accounting.

A widely (if possible, internationally) accepted system of classification of fixed assets involved in typical projects would offer very

promising possibilities. It would be a most valuable tool for the (often inexperienced) programmer, who must break down a complex project into component activities on several levels of detail in order to establish a programming network; it would provide him with a "technological grammar" based on the experience of thousands of technicians, enabling him to express organizationally and functionally the proposed process of implementation. It would greatly increase comparability between projects of similar types, and, thus, would facilitate the spread of innovation and of the constantly accumulating experience. Finally, it would greatly increase the compatibility of network structures with those of conventional cost accounting, and thus would facilitate the search for efficiency and elimination of waste.

Practical Advantages of Network Diagrams

Enough has been said to indicate the very great usefulness of the PERT-network technique for efficient scheduling of project implementation and for relating programming to accounting. In principle, one could obtain similar results by using only language and mathematics. In practice, this would be impossible. The networks reveal the pattern of interrelationships among activities of a project, the causality that must be honored to bring a project to successful completion. In most cases, these complexities surpass the powers of imagination and retention of even highly competent technicians and programmers. In countries where the tradition of large, technologically complex projects is only now being implanted, the network technique may well become the greatest single tool permitting managerial personnel to grasp the reality of the tasks facing them.

Paradoxically, it is in the campaign-type projects, so loaded with emotional minefields and booby traps, that seemingly "mechanistic" methods of project formulation and programming can often be most useful.

PERT-type programming could greatly help to locate shortcomings in past projects and indicate ways to avoid them in future projects. Comparison of a million-dollar campaign in country A with one in country B, for example, might show that, while total expenditures were equal, perhaps 5 percent of funds in country B needed to be shifted from the ostensible objective of the campaign (say, the teaching of some new technique) to motivation activities (showing of moving pictures, etc.) in order to break the emotional ice between the project staff and the population. Perhaps, again, a slip in timing accounted for the failure: if people were properly motivated for vaccination in May but the nurses with their needles arrived only in June, the right feelings and ideas had time to evaporate, the old misgivings came back, and mothers did not bring their children to the dispensary.

However, the utility of networks is not limited to finding out afterward what went wrong. By means of a network, availability of often scarce equipment like jeeps, movie projectors, and mimeographing machines—essential to most campaign projects—can be scheduled realistically. Talented campaign directors—all too rare, in any event—need divert less energy to fighting the delays in the flow of supplies, materials, and personnel that may result from imperfect or unrealistic programming and scheduling.

On all development projects, frictions between enthusiastic, perhaps unrealistic, project directors, on the one hand, and coordinating, planning, budgeting agencies, on the other, may be diminished by having the structure of a project well worked out in advance. If a promoter of a new project were offered a structural model (best in the form of a manual giving examples and labor-saving forms with appropriate headings) of a PERT-type project document and the help of a specialized programmer, he could be encouraged to state his project proposal in terms of its component activities, their inputs, and meaningful time relationships. He might then face the difficulties and chances of success more realistically, and be more willing to look to the planning agency for managerial advice and even for constructive criticism.

The principles of this system are so general, and at the same time so open-ended in allowing for growth of sophistication, that they can be applied on extreme levels of simplicity. Advanced PERT systems make great use of computers to adjust time schedules; in many sophisticated projects, computers are almost mandatory because the networks contain so much detail. This stage will be reached one day by projects in the emerging countries. For the time being, however, the main advantages of network programming for these countries lie in its logic and its ability to dramatize the crucial role of interdependencies in projects that must be satisfied for successful implementation.

[Excerpted from "Development Project Format: A Design for Maximum Information." Wash. D.C.: Center for Development Planning, Dec. 1966. Working Paper M-8905. (Mimeo.)]

This article is based on research made possible by a contract with USAID; the author assumes full responsibility for all views presented. The NPA's Center for Development Planning conducts research on development planning and strategy in less developed countries. Much of its recent work has focussed on small, open economies; field teams are located in the Philippines and Thailand. Research results are published by NPA and in professional journals.

Fernando, Eustace P. C., The Implementation of Industrial Development Programmes Using Critical Path Network Theory. Cambridge, Mass.: Alfred P. Sloan School of Management, M.I.T., 1965. Working Paper #149-65, 78 pp. (mimeo.) Out of print.

Another useful, step-by-step illustration of networking is that of E. P. C. Fernando, in a working paper prepared for the UN Symposium on Industrial Project Evaluation, Prague, Czechoslovakia, October 1965. Mr. Fernando uses the establishment of a sugar factory and associated sugar plantations in an undeveloped part of "Nabropat" as his example. The network does not go into the detail of how best to build the sugar factory, but, rather, concentrates on structuring the relation of the sugar project to the supporting activities needed to make it a success—budget approval, road construction, land clearance, irrigation, training agricultural workers, importing factory machinery and agricultural equipment, etc.—as well as the integration of the sugar project into a comprehensive master plan for regional development. (See also, Grasberg, figure 7, p. 19.)

Mr. Fernando makes, as Mr. Grasberg does not, the common PERT distinction between normal activity-duration and rapid activity-duration and shows that, while direct costs increase when the duration of activities on the critical path is shortened, they do not increase as much as they would if all activities were speeded up indiscriminately. He includes a useful discussion on the problem of arriving at an "optimum" balance, in terms of cost, between the shortest possible duration of the project—which saves on such expensive "indirect" costs as supervisory inputs, interest payments, etc.—and the least possible increase in direct costs. He also offers tentative suggestions for improving allocation of scarce managerial resources by spreading the assignment of "versatile" supervisory personnel more evenly over the duration of the project.

A limited number of this paper can be obtained directly from the author (United Nations Centre for Industrial Development, United Nations, New York, N. Y. 10017).

Some of the same material is presented in an addendum, prepared by Mr. Fernando, to "Experience and Problems in the Implementation of Development Plans, Comments on

methods for reporting and evaluating progress under plan implementation," by Max F. Millikan, for the ECOSOC Committee for Development Planning (UN Document E/AC.54/L.18/Add.1, 24 March 1967). The Addendum also contains suggestions for formulating and regulating a "project-sectoral interdependency matrix" that would help to clarify the role of supporting sectors in the implementation of a project.

FOOD

THE STORK OUTFRONS THE PLOW

Lester R. Brown

[World demand for food is growing at 4 percent per year—faster even than the growth of population. If agricultural yields are to rise fast enough to meet these needs, farm inputs will have to be produced, distributed, and used much more efficiently than in the past.]

One of the most disturbing problems facing man today is his apparent inability to balance his numbers and his food supply. Populations growing by 3 percent a year double within a generation and multiply eighteenfold in a century. To an agriculturist the demographic arithmetic is frightening. Man/land ratios are rising precipitously throughout the less developed world as the stork outruns the plow.

Thirty years ago the less developed regions of Asia, Africa, and Latin America were all grain exporters. Collectively, they sent some 11 million tons of grain yearly to the developed regions, principally Western Europe. During the war decade of the 1940s, this flow was reversed and the less developed world became a net importer of grain, losing a valuable source of foreign exchange earnings. Net imports of grain reached four million tons in 1950 and 13 million tons in 1959. As population growth rates in the less developed countries accelerated further during the 1960s, the net inflow increased sharply, reaching an estimated 31 million tons in 1966. This rapidly growing food deficit is causing a sharp diminution in the world's food reserves.

Five years ago the United States had the world's two major reserves in the race between food and people. It

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had in its grain elevators 50 million tons of excess grain—i. e., above and beyond normal reserve requirements. In addition, a sizable fraction of its cropland was made idle under government farm programs. As of 1966 the grain surpluses are gone. There are no excess stocks of wheat, rice, or feedgrains. As recently as 1965 the US had 56 million acres of idle cropland, but actions taken during 1966 to expand acreage of wheat and feed grains will bring back into production at least half of this one remaining reserve. Thus, with US reserves fast disappearing, the less developed countries must now provide for increased food needs from their own resources.

Supply of New Land Diminishing

Why is the less developed world losing the capacity to feed itself? Throughout most of recorded history, man was able to increase his food supply by expanding the area of land under cultivation. He matched his increase in numbers with increases in the area under the plow. This was a moving force in the colonization of new lands. As long as he had this option, maintaining an adequate food supply was relatively simple. But, on a finite earth, this period of land expansion had to come to an end.

The area of land under cultivation in North America and Western Europe stopped expanding several decades ago and has actually declined over the past thirty years. This has not caused serious problems. Both of these regions have developed an impressive production capability on the existing land area, doubling production within the past generation. Large-scale investment of capital and widespread application of technology enabled these regions to compensate for the lack of new land.

Until quite recently, most of the less developed world was still expanding the area under cultivation to feed its rapidly growing population. In recent years, however, country after country has furrowed the last of the "new" land readily cultivable.

During the Fourth Plan period, ending in 1971, India plans to expand the net area sown by less than 1 percent, though the nation's population is expected to increase by 14 percent. Clearly, most of its additional food needs must be met by raising productivity per acre.

Nearly all of Asia, the Middle East, and North Africa share this land hunger. Only Sub-Saharan Africa and parts of Latin America can expect to significantly expand the area under cultivation. Most of the increases in world food needs over the remaining one-third of this century must be met by increasing the productivity of land already cultivated.

But many of the less developed countries face a dilemma. Although they have run out of new land to bring under cultivation, they have not yet achieved a take-off in food output per acre (see charts). The result is growing food deficits. In order to keep food production increasing in line with demand, these countries must now begin using massive capital inputs and advanced technology.

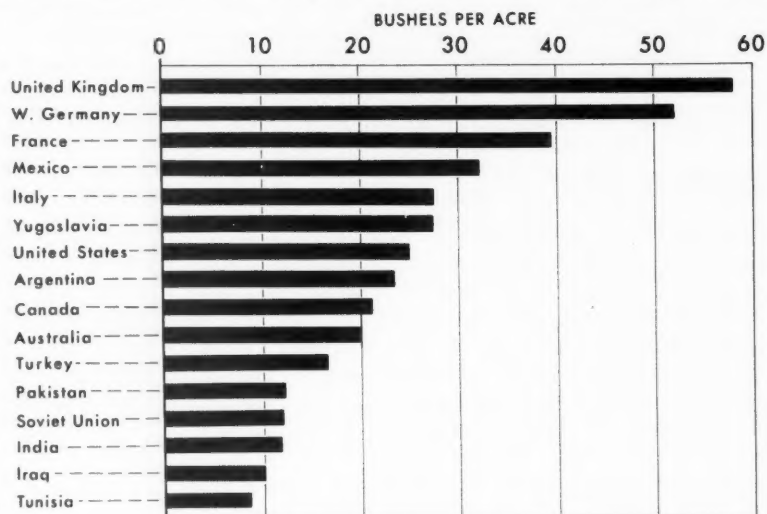
Industrial Inputs to Raise Yields

As long as there is an abundance of new land to cultivate, continuing population growth does not pose any serious problems for traditional agriculture. The frontier is simply pushed back a bit further. Land and labor, the key inputs, are readily available. Seed and draft animals, the principal capital inputs, are self-generated on the farm. Next year's seed is saved from this year's crop. Technology does not change. Inputs are not needed from the rest of the economy.

An economy running out of new land to plow, however, must begin using large amounts of purchased inputs to raise the productivity of land. Under these circumstances, agricultural growth is entirely dependent on the rest of the economy for the goods and services needed to generate and sustain a take-off in yield per acre. Fertilizer, pesticides, implements, improved plant varieties, and a wide array of other inputs are needed. All must come from the non-farm sector. Required services are as essential as the physical inputs themselves. These include research, credit, and transportation and marketing facilities. Gains in food production in a "fixed land" economy depend directly on the ability of the non-farm sector to supply the necessary goods and services.

The extent of capital investment and technological change required to "make two blades of grass grow where one once grew" is not generally appreciated. Consider the variety and scale of purchased inputs in the United States. The farm inputs purchased by US farmers totaled \$21.5 billion in 1965. Approximately \$9 billion of this represented feed and livestock purchases, many of them from other farmers. The remaining \$12.5 billion of purchased inputs came from outside the farm sector. The wide variety of inputs used included fertilizer and lime (\$1.7 billion), petroleum products (\$1.5 billion), and equipment parts and repairs (\$525 million). A sampling of other items includes electricity, containers of all kinds, binding twine for hay bales, veterinary services, and animal antibiotics. The complete list of purchased inputs is pages long. For each of the 300 million acres they cultivate, American farmers spend \$42 annually on production requisites supplied by the non-farm sector.

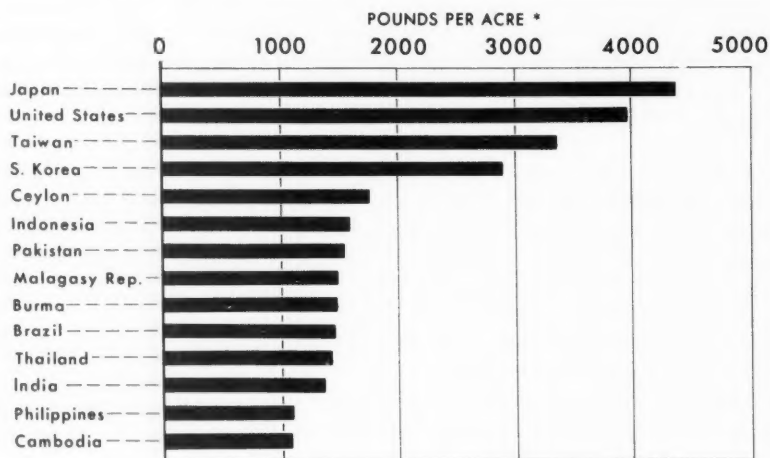
WHEAT YIELDS IN MAJOR PRODUCING COUNTRIES, 1963



U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 3556-65(3) ECONOMIC RESEARCH SERVICE

RICE YIELDS IN MAJOR PRODUCING COUNTRIES, 1963



* ROUGH RICE

U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 3556-65(3) ECONOMIC RESEARCH SERVICE

Source: L. R. Brown, Increasing World Food Output. Wash. D. C.:
US Department of Agriculture, 1965. pp. 77 and 80.

The average size of the US farm is quite large, but it must not be thought that a system of small holdings is a deterrent to either the sharply expanded use of inputs or greater agricultural output. Japan and Taiwan, with farms averaging only 2.5 and 3.1 acres [1 hectare=2.47 acres] respectively, have two of the world's most technologically advanced farm sectors. Japanese farmers, with a high-rainfall rice culture and a more intensive mode of cultivation, spend even more per acre than do their American counterparts. Their expenditures per acre for agricultural chemicals alone—fertilizer, insecticides, fungicides, and herbicides—now exceed expenditures per acre for all production requisites in the United States. In addition, though Japanese farmers typically operate on a small scale, each year they spend more than \$5 per acre for farm implements and power equipment. This is almost exactly the same expenditure per acre as in the United States. Whereas US farmers buy one large tractor for, say, 150 acres, Japanese farmers buy a number of small, garden-type tillers for the same area.

US farmers last year spent \$599 million for improved seed. India, with a slightly larger area under crops, represents a potential market of comparable size. The entire less developed world, with a cultivated area roughly five times that of the United States, represents a fantastically large market for seed alone. By 1980, most of this vast area of cropland must be planted to improved varieties if the projected population is to be adequately fed. Few traditional varieties of foodgrains are genetically capable of the rise in yields required over the next fifteen years.

The demand for food in the less developed countries, reflecting both population growth and modestly rising incomes, is growing 4 percent every year. Compounded over the next fifteen years, this rate of growth will increase the demand for food by 80 percent between 1966 and 1980. Grain production, now totaling just over 500 million tons, must climb to 900 million tons. Assuming this target, and using the rule of thumb of one pound of plant nutrients for every 10 pounds of grain, the current yearly fertilizer consumption of 7 million tons in the less developed world must climb to 47 million tons in 1980. At \$150 per ton of fertilizer, this prospective market could well expand from the present one billion dollars a year to at least \$7 billion fifteen years hence. This volume of fertilizer, averaging about one-fourth the Japanese rate of usage, would still be far from optimal.

Price Incentives

The ability to supply fertilizer and other essential inputs rests in large part on two developments: 1) the adoption by the developing nations of enlightened price policies and 2) measures to encourage

private foreign investment. In an area-expanding agriculture, food prices received by farmers have relatively little bearing on production levels. Once a country turns to raising output per acre, however, its farmers must be assured of a price for their products which makes the use of modern technology profitable. A farmer cannot be expected to use fertilizer if the cost of the fertilizer exceeds the value of the additional grain resulting from its use. Yet, governments in most less developed countries, with political bases in the urban areas, traditionally have a consumer-oriented food price policy. Their aim is to hold retail prices down. This generally involves keeping farm prices down, thus aggravating food supply problems.

The rash of take-offs in yield per acre occurring in the late 1930s and early 1940s in the advanced industrial countries was closely associated with the adoption of farm price-support policies during the depression years. Some countries have chosen to achieve the same end by subsidizing farm inputs. The government of Pakistan, for example, has been making fertilizer available at half cost, stimulating demand to the point where it now exceeds the available supply. Farm price supports or input subsidies, or some combination of the two, can be effectively used to speed the adoption of modern technology, telescoping into years developments normally taking decades.

Once it becomes profitable to use modern technology, farmers catch on quickly. The problem then becomes supplying the inputs rather than overcoming the farmer's reluctance to use them. In India, where a price-support system is now operating, the effective demand for nitrogenous fertilizer is estimated at 1.5 million tons this year. Since India produces only 400,000 tons, some \$120 million of scarce foreign exchange is being used to import 600,000 tons from abroad. Even so, a serious shortage, reportedly resulting in fertilizer riots in some localities, remains. Fertilizer riots are admittedly preferable to food riots, but nonetheless it is unfortunate that farmers are deprived of the inputs they want and the country deprived of the food it so desperately needs.

The clamor for inputs is not limited to India or to fertilizer. It exists in nearly all those developing countries where the use of modern agricultural technology is now profitable. Unfortunately, the industrial sectors of these countries lack the resources and technology to provide the necessary yield-raising inputs on the scale needed. Nor can the gap be filled with government-to-government assistance.

Private Investment

We have heard many times from many sources that the world now has the know-how to banish hunger. Unfortunately, however, the know-how is concentrated in one part of the world and the hunger in another. For the most part, the resources—capital and managerial, technological and distributive—to meet this need are not in the hands of government. They have been developed by the large industrial firms that produce and distribute agricultural inputs in North America, Western Europe, and Japan. The problem is how to transfer these existing resources across national boundaries to the areas where they are needed.

If the developing countries had unlimited time, they could eventually develop with their own resources an industrial sector capable of supporting a modern agriculture. But populations that double within a generation allow little time. Feeding populations that are 3 percent larger each year, on a fixed cropland base, requires a lot of progress in a very short time. The transition from expanding area to raising yields must be quick. The progress of centuries must be compressed into decades; that of decades into years. Time is the new and single most critical dimension of the food/population problem. This is why the developing countries must seek a massive injection of private resources from abroad.

In the past, internal policies affecting foreign private investment in the land-scarce, food-hungry countries have been heavily weighted with ideological considerations. Fortunately, this is on the wane. An enlightened political leadership is beginning to heed the words of Berthold Brecht, in the Three Penny Opera:

Now all you gentlemen who wish to lead us,
To teach us to resist from mortal sin,
Your prior obligation is to feed us:
When we've had our lunch, your preaching can begin.

The technology, capital, and management and marketing know-how to overcome the energy-sapping food shortages in the developing countries exist. The problem these countries face is how to gain access to it. Some countries, particularly Mexico, Taiwan, and Israel—all three of them agricultural success stories—have successfully tapped this international resource.

Distributing Inputs More Efficiently

Production of the needed farm inputs solves only part of the problem. They must be distributed in an efficient, timely manner.

Too many leaders in the developing countries feel that government agencies can distribute farm inputs more efficiently than can private industry. Although governmental bureaucracies are not very adept at producing farm inputs, the record indicates they are even less adept at distributing them. Tales of seed arriving months after planting time and fertilizer not arriving at all are commonplace throughout the less developed world. Private distribution systems reward the distributor for a successful distribution and sales effort and penalize him for failing to deliver the product in time for use. Government distribution agencies seem not to notice.

Distribution of agricultural inputs is incredibly complex compared with that of most industrial raw materials. The small-scale, high-markup distribution systems that characterize most developing countries will not serve the needs of a modern agriculture. Modern mass-distribution methods of the kind used in the advanced countries must be introduced.

The concept of servicing customers does not yet seem to have caught on in most developing countries. Firms distributing inputs in the more advanced countries use customer servicing as a competitive tool. In the fertilizer business, for example, the quality of soil-testing services and advice on fertilizer usage provided to farmers is often a more important competitive tool than pricing. Advice meted out must be reliable. Next year's sales depend on it.

The lack of customer servicing in the less developed countries is perhaps most obvious in the case of farm equipment. Governments in many developing countries import farm tractors and equipment directly, but fail to assume the responsibility for providing the spare parts and skilled maintenance men needed to keep equipment operational. The weaknesses of such an approach are evident in the abandoned farm equipment, particularly tractors, dotting the countryside.

Research and Extension

Early in this century, nearly all of the agricultural research in the United States was government research. The Extension Service was the institution responsible for getting the results of this research to farmers. This picture has altered dramatically since World War II. As of 1966, private industry is doing the major share of applied agricultural research. Industry, through its highly trained sales and service force, now also does much of the extension of technology from the research plot to the farm, a job that once belonged almost exclusively to the Extension Service. The innovative character of US agriculture in the postwar period is due, in good measure, to the large-scale entry of industry into agricultural research and extension.

Today, government and industry are effectively teamed. Government contributes importantly with its price support programs, ensuring a minimum price to the farmer for his product. On the basis of this, the farmer and the lending institutions are willing to invest in both short-term production capital and long-term improvements. Government supports basic research, and industry translates this into an array of new and advanced inputs, many of which did not exist ten years ago.

To the extent that developing countries can build this research and extension capability into their farm-supply industries, they can move much faster.

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THE POSSIBILITIES OF EXPANDING FOOD PRODUCTION BY 1980

O. E. Fischnich

[There is little doubt that man can—by conventional and non-conventional means—grow enough food for his needs, possibly to the end of the century. Whether he will or not is another question.]

By 1980, if present trends continue, there will be another 1,000 million people to be fed. For every increase of 100 million in the population, an estimated 13 million tons of cereals and more than 14 million tons of meat, milk, eggs, and fish will have to be produced to meet pressing needs. Thus, the world's farmers will be facing a minimum needed food production increase in the order of 130 million tons of cereals and 140 million tons of animal products. If the need to improve the present nutritional standards of the underdeveloped peoples is additionally taken into account, then the aim must be a world production increase of 33 percent for cereal and not less than 100 percent for meat, milk, eggs, and fish. It seems inconceivable that increases of this magnitude can be achieved unless far-reaching changes are made in the world's agricultural production policies, especially in those countries already feeling the heaviest pressures.

Means of Increasing Conventional Agricultural Production

With the bringing into cultivation of large areas of the world's land surface in the past century, and the increasing cost of clearing much of what remains, it seems probable that additions to the world's food

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supply must, in future, come mainly as a result of raising the yield, both of crops and stock. In other words, capital must be substituted for land and new techniques must be used.

By increasing output from crops. Use of hybrid or improved varieties of seed could result in an increased production of 20 to 30 million tons of grain in Europe, Africa, Asia, and Latin America. But other aspects of crop culture must receive attention if the results are to be fully achieved. Modern science and technology has highlighted the necessity for building and maintaining the fertility of the soil, providing adequate supplies of water and plant food, securing suitable environment through the establishment of shelter belts and windbreaks, cultivating at the right time, protecting the growing crop from pest and diseases, and, finally, controlling pests where the grain is stored, for local investigations have shown that as much as 50 percent of what has been grown may be lost in storage.

By the use of water. A factor of great significance to crop production, especially in arid or semi-arid countries is the more effective control of water. In many areas of the world, rainfall is concentrated in one season of the year and the heavy seasonal precipitation often creates great devastation to unprotected soil. Where adequate conservation measures are taken, physical damage can be minimised and better moisture conditions for plant growth can be created; where irrigation is possible, the growing of two or three successive crops in one season becomes a practical measure. However, unless such areas are properly drained, increasing salinity renders the soil unsuitable for crop growth.

By the increased use of fertilizer. With the availability of improved seed and adequate supplies of water, greater exploitation of the world's increasing knowledge of plant nutrition becomes possible. During the last two years, out of a world total of almost 30 million tons of plant nutrients applied as fertilizers, nearly 27 million tons were used in the industrial countries, and only 3 million in the developing areas. As a result of many thousands of fertilizer trials carried out in developing areas, man's knowledge of these matters has increased immeasurably and, with it, the conviction that chemical fertilizers have opened up fruitful avenues for the development of food and forage production.

By mechanisation and use of improved tools. The efficiency of the tools the farmer uses determines the amount of land he can cultivate, the quality of his tillage work, and, hence, the yield of his crops. In vast areas of the world, over 90 percent of the power on farms is generated by human beings and animals. Much of the equipment they handle and pull is capable of improvement and any

forward-looking policy for increased food production must clearly contemplate their modernisation. For the time being, the general use of powered instruments will be neither economically nor socially feasible, but even the improvement of the design of hand tools or animal-operated implements could make a noteworthy contribution.

The rising population of the world is causing governments to embark on land reclamation schemes. Many of these involve forest and bush clearance, and the preparation of rough terrain for cultivation. Specially designed and thoroughly tested equipment could open up large areas of the world at present unproductive.

By improving livestock production. Available statistics indicate that the average annual production of livestock is only 20.5 pounds in the case of beef and veal, 4.2 lbs. for mutton, lamb, and goat meat, 20.3 lbs. for pork, 8.6 lbs. of eggs per hen, and 250 lbs. of milk per cow. Yields in countries with an advanced livestock industry are a hundredfold higher in the case of mutton, tenfold for beef, sixfold for eggs, and almost twentyfold in the case of milk.

Experience indicates that livestock output depends on individual productivity rather than on numbers alone. Large areas of the world are considerably over-stocked with underfed animals of poor quality, a reduction in whose numbers would be a first step to increasing the productivity of those remaining. Over-stocking, underfeeding, the prevalence of disease, haphazard breeding practices, poor management, and lack of marketing or processing facilities bring about an overall situation which cannot be improved by the universal application of techniques used in advanced countries. Each of these inter-related problems and potentials has to be examined to determine the most seriously limiting factor before a logical plan for livestock development can be prepared.

It is illogical to initiate the development of feed supply through ley farming methods or improved range management, for instance, if at the same time measures are not taken to eliminate livestock disease and parasitism. Similarly, genetic improvement will be wasted without the simultaneous improvement of animal nutrition, and the final success of all livestock improvement programs will depend on the establishment of appropriate processing and marketing facilities. One of the greatest needs in livestock production improvement programs is for more and better trained personnel.

By improving the output of the sea and inland waters. Sevenths of the surface of the globe is under saltwater, and yet man draws from it only one hundredth part of his food.

Eventually, perhaps, through increasing international enlightenment and cooperative action, both the seas and inland waters will be able to supply human needs to a far greater extent than has been the case in the past. Indeed there are encouraging signs that this is taking place already, albeit unevenly; according to the FAO, the world catch in 1963 was about 46 million tons, or twice the amount produced as recently as in 1951.

Quite apart from the greatly improved nutritional standards which can be brought about as the result of an increase in the catch of fish, the diversion of fish and fish wastes to the production of fish meal for export can benefit some countries' balance of trade significantly.

By preventing wastage of agricultural and fishery products. Food technology is the link between production and consumption. It includes the processing and preservation of foods by such traditional methods as sun-drying, salting, or fermentation as well as the modern methods of dehydration, canning, and freezing and the ultra-modern methods of freeze-drying and the use of ionization radiation. The major reasons for processing foodstuffs are to prevent spoilage and wastage, to permit year-round availability, and to develop new products of good nutritive value at a cost which all can afford.

In the encouragement of the production of traditional protein foods and grain legumes, international efforts have focussed on the development and production of inexpensive protein concentrates from sources hitherto largely unused. For instance, protein-rich foods, of low cost, have been developed in a number of countries from such indigenous protein resources as oilseed meals and presscakes. Fish protein concentrate is another important potential source of high-grade protein.

The contribution of atomic radiation. In each of the broad fields of increasing food production so far surveyed, the new science of atomic energy is playing an increasingly important part, above and beyond potential provision of cheap power. The plant breeder now has at his disposal a wider and more variable range of materials as the result of hereditary mutations provided by sources of radiation. Tracer techniques offer a new way to obtain better understanding of animal and plant life, of soils and water, and of the complex relationships between them.

The heavy loss in field crops at all stages of production, distribution, and storage already referred to can be considerably reduced by the application of radiation and radioisotopes for the effective control of fungal and bacterial infection and of the ravages of insect pests. Tracer studies are helping investigations into some of the

basic problems of livestock production, notably those concerning the efficiency of food utilization by the animal. The use of carbon-14 as a tool for estimating the productivity of ocean water is probably the most important application of radioisotopes in fisheries.

The contribution of research and application. Many new discoveries show promise of coming to fruition in the next 10 to 15 years.

One of the developments that would have the greatest impact on world food production would be the successful desalination of sea water. This idea is neither new nor impracticable, but existing distillation processes are still far too expensive to be economically practicable in the agricultural context, where many million gallons of water are needed for bringing dry areas into cultivation, and for irrigation. A successful breakthrough in this single development would revolutionize current food production forecasts.

Though much has been accomplished by the scientist and experimenter, the lapse of time which frequently occurs between the availability of new knowledge and its translation into agricultural practice is a matter of great concern. A decade may pass in the slow process of implementation. Thus, in considering means of increasing food production by 1980, serious efforts must be made to reduce this time lag.

Non-conventional Sources of Food

In general, technological feasibility in developing food products from unconventional sources is not a limiting factor, since modern food technology can cope easily with most problems. The most critical and difficult aspect of introducing these products for large-scale use in the human diet is acceptability and marketing.

Food yeast. Considerable effort has been applied to research and developmental aspects of the supply of protein from less conventional sources, with highly promising results. The carbohydrate-rich by-products of certain industries, such as the sugar and the wood pulp and paper industry, could be used to produce sizeable quantities of edible yeast. So far only minor quantities of food yeast are used as human food, mainly as a good source of certain vitamins (B-complex), rather than as a source of protein and calories.

Petroleum proteins. A recent development is the production of proteins by yeasts growing on paraffinic hydrocarbons obtained by refining crude petroleum. Such products are currently being studied for wholesomeness and biological value. With the exception of food yeast, these so-called petroleum proteins seem to offer the best hope for a cheap, good source of protein.

Algae are increasingly attracting the interest of research workers in various countries. Pilot mass-cultures of chlorella have provided extremely encouraging products in satisfactory yields.

Leaves. Protein extracted from green leaves is a very promising potential source of food. A considerable amount of pioneering work has been done, but as with algae, a number of problems remain to be solved before a low-cost product of good nutritional value and acceptable to the human palate can be produced.

Prospects

There seems to be general agreement that, by 1980, the world population will be of the order of 4,000 millions. In order both to provide for the increase which will have taken place by then, and to satisfy the need to improve the present low level of the diet in many countries, food production must increase by more than twice existing levels, and within this figure the current supply of food of animal origin will need to be increased threefold.

Can these big increases be achieved? There appears to be no doubt that the application of man's existing knowledge to farming practice, in all its aspects, would be adequate to take care of human food needs, possibly to the end of the century. But whether it will be so applied is another question.

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RESEARCH IN HIGH-PROTEIN FOODS

[Protein hunger is now recognized as a serious form of starvation. Research is developing a wide variety of protein-rich foods. The next steps will be to adapt them to local tastes, manufacture and distribute them at a reasonable cost, and convince people actually to eat them.]

There is much more to hunger than an empty stomach. Nutritional hunger can be just as debilitating, and, while it takes longer, just as fatal as out-and-out starvation. In the developing nations, some 270 million children under fourteen years of age suffer seriously from malnutrition. Millions die because malnutrition has sapped their resistance to childhood diseases. Millions who survive are permanently handicapped mentally and physically.

Protein hunger is especially serious for sensitive populations like children, pregnant and nursing women, and the ill or injured. This problem is critical in areas of the world where the major source of calories is, for example, cassava, some sort of "sweet water," or other food with low protein content. It is especially serious for pre-school children. Recent research indicates that their brains reach 80-90 percent of full weight before age four; if they don't get enough protein in that critical period, the brain never develops properly.

One way to solve this problem is to provide concentrates made from animal products—but this is too expensive. The animal, so to speak, charges a high price for its products. Another way is to use plant proteins, which are basically cheaper than animal proteins because they don't have to go through the animal. Other alternatives are to use a cheap source of animal protein such as fish flour, or to supplement cereal grains with amino acids like lysine as a means of improving the protein in the diet. Lysine, an

odorless white powder with a slightly salty taste, is the most important of the 18 amino acids necessary for body growth and tissue synthesis.

New Foods

Research now under way promises a variety of new protein-rich foods. For example, an Israeli researcher is working on a new protein-rich vegetable mixture which can be fed to babies on the bottle. It consists of steam-heated chickpeas, defatted sesame flour, and heat processed low-fat soybean flour. It will be high in essential amino acids, B-vitamins, calcium, and iron, and will have the consistency and calorie and protein content of gruel. Sugar, flavorings, or juices from locally grown fruits could be added for taste or additional nutrients.

Among other new foods coming from current research is a peanut flour wafer made without milk or eggs. The wafers are easy to prepare and, because they can be eaten out of hand, would be especially useful for young children and in school feeding programs.

Processes for making high-protein diet supplements and snacks from cereal crops and cereal-soybean mixtures have also been developed. Wheat, oats, rice, barley, rye, wheat-soybean mixtures, and rice-soybean mixtures have been used. Processing methods are adapted from the Indonesian ways of making soybean tempeh—a food which, like bread and cheese, is made by the action of micro-organisms. These new foods can be deep fried as chips or added as ingredients to soups and other dishes. Stews made with commonly available onion, turnips, beans, tomatoes, peppers, etc. could be thickened with an oilseed flour to add needed protein to the vitamins and minerals in the vegetables. Another nutritious dish that could prove popular in many countries is curry made with oilseed flour and locally grown chickpeas.

High-Protein Flour

US scientists are testing a new process for making soybean flour. About 40 percent protein and 20 percent fat, the flour might be used in beverages, soups, and various cooked dishes. To make the flour by hand, soybeans are soaked overnight, boiled 10 to 15 minutes, air-dried, cracked, de-hulled, and ground. This processing requires only human muscle, an open fire—and an open mind.

On another protein development front, the US Department of Agriculture has recently developed a way to obtain high-quality protein for human food from flour-mill byproducts that now go into low-value livestock feeds. Flours made from these byproducts can be

prepared as bread, pastas, soup mixes, and other foods in which flour is an ingredient. Because these byproduct flours have a desirable balance and abundance of nutrients, they should be useful in baby foods and diets for the elderly.

High-Lysine Grains

High-lysine corn, a product of the mutant opaque-2 gene, was recently developed by Purdue University, in Indiana. The opaque-2 gene contributes to the corn high levels of lysine and tryptophan, another essential amino acid. One Guatemalan scientist has commented: "the inclusion of this gene in common corn appears to be a practical approach to the problem of improving the protein quality of human diets based on corn." The USAID is sponsoring projects to test supplementation of wheat with lysine, as well as other projects in the high-protein field.

Purdue University is also undertaking research on ways to improve the protein quality and content of sorghum—a cereal used by more than 200 million people as a major item in their regular meals. Researchers will screen more than 5,000 strains of sorghum, collected from all over the world. When they have found those with the best amino-acid patterns for human nutrition, they will assist plant breeders in the developing countries to carry out sorghum-breeding programs. The researchers estimate that farmers in many developing countries will be raising these new sorghum varieties within five years.

Soybeans could provide a major source of the world's future protein requirements. Breeding programs to utilize varietal and cultural differences in the amino-acid composition of soybeans have been limited, however, because methods for routine analysis of amino acids in soybeans are inadequate. Research is currently under way to fill this need.

These are but a few of many protein development projects now under way. Some are beginning to interest commercial manufacturers. Combined, they have a great potential for closing the gap between what the malnourished now eat and what they must eat to mature properly. But these current research results are just that—research results. They will be significant to the world food problem only if they can be translated into actual foods actually being eaten by those who need them. The foods must be adapted to local tastes, people must be convinced to use them, and the foods must be distributed in necessary supply and at reasonable prices.

[Adapted from International Agricultural Development. Wash. D.C.: US Department of Agriculture, May and September 1966. Gratis, pp. 2-5 and 4-5.]

TOURISM AS AN EXPORT INDUSTRY

The importance of tourism as a foreign-exchange earner has long been recognized. Indeed, a number of countries—including Greece, Jamaica, Jordan, Mexico, Morocco, Spain, and Uruguay—earn over 10 percent of all their foreign currency from it, while others are making great strides in attracting foreign visitors. Understandably, the attraction of tourism for less developed countries is primarily as an export industry. And it is to this aspect of tourism that the articles in this section address themselves.

One thing is clear: the potential facilities for tourism in the less developed countries are grossly underutilized, and, without substantial effort, the less developed countries will fall further behind in the competition for tourist revenue. The United Nations' designation of 1967 as International Tourist Year, "with special emphasis on promoting tourism to developing countries," is one attempt to change the direction of existing trends. The increased willingness of international organizations to assist tourism development is another: in its 1967-68 program, the United Nations Development Programme has included a total of 47 tourist projects; the IBRD's affiliate, the International Finance Corporation, in 1966 made its first investment in the tourism industry (in Kenya). As with most things, however, the less developed countries themselves will have to bear the primary responsibility for seeing that their potential tourist attractions are realized. The articles that follow offer some suggestions on what needs to be done.

GOVERNMENT'S ROLE IN TOURISM DEVELOPMENT

Margaret Wolfson, Rapporteur

[The development of tourism presents a considerable challenge. As an industry, it is diffuse, highly competitive, and relatively unpredictable. Both government and private sector have important parts to play.]

Prospects for expansion of the world tourist industry seem almost limitless. Surprisingly, in view of the impressive statistics on international travel, the amount of travelling for pleasure is still very modest; much of today's travel is not undertaken for pleasure at all, but for other purposes. However, the steady growth of such features of modern life as the paid vacation, the long week-end, the fashion for more than one annual holiday, and the inexpensive charter flight, will tend to bring both new economic and social groups and new areas of the world into the international tourist trade on a greatly increased scale.

There is, perhaps, a tendency for some developing countries to see in tourism an easy resource for economic development and a ready-made solution to balance-of-payments difficulties. This is far from the case, however. Countries that are geographically remote from high-income areas, whose climates are unpleasantly extreme, and whose low level of overall development means that they lack the basic facilities that tourism requires, cannot expect to build up a tourist industry of any appreciable size without considerable difficulty.

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In terms of tourism prospects, countries fall roughly into four different categories: 1) those where tourism is limited and, for the reasons indicated above, is likely to remain so; 2) those where there are only limited possibilities of advance (e.g., some parts of Africa); 3) those where tourism already exists and, with proper handling, could become a very important factor in the economy (e.g., Morocco); and, finally, 4) those with a highly advanced tourism industry, for whom the question is how to maintain that advance.

In countries where development of the tourism sector is an important element in the national development plan, the government is likely to play a rather direct role in its management. Tourism cannot be expected to develop along the lines and at the rhythm desired by the government if the programme is left entirely to the operations of the private sector. Investment in facilities tends to lag far behind the growth of demand, since private investors, both national and international, are frequently hesitant to invest in tourism. Furthermore, even where the private sector is active and experienced, a number of functions are properly the responsibility of government, acting, very often, through the national tourist organization.

Basic Market Research

The importance of research as a precondition of tourism development is still far from fully appreciated. The national programme must be based on estimates of anticipated receipts from the tourism sector, assuming certain projections of demand and overall levels of investment. It will lay down broad guidelines for the development of the sector and will be quantified so as to provide targets for investment in selected regions of the country. Within this framework, the different area tourist programmes will normally be prepared by the authorities of the area concerned.

Area Development Plans

Since a government can rarely afford to do everything at once, it may do well to give priority to those areas whose tourist attractions are already proven, and where the infrastructure already exists. The development of new tourist regions, perhaps worthwhile eventually, will require heavy prior investment in infrastructure.

For the area plan, as for the national plan, the first requirement must be research into demand. This involves examining existing traffic into the area—there is usually some—and then looking at the world market and at areas of competing attraction. The next stage is to assess the attractions, both actual and potential, of the area to

be developed. This analysis can be done more precisely if the area is relatively limited or at least forms a separate and identifiable development region.

Some natural attractions can always be developed as focal points of tourist interest. One of the most important is a body of water, which can provide simultaneously for two or three different types of tourist traffic. Another is a centre of historical or archeological interest. Attractions can also be artificially created. An international sports event or arts festival, for example, can bring a thriving tourist traffic to a town that might otherwise have no special competitive attractions.

Prior existence of transport in the area is no longer indispensable. With a minimum road network, the combination of plane and car makes it possible to open up quickly and easily areas previously considered inaccessible.

In planning for the tourist market, it is important to recognize that tourist traffic is not homogeneous. There are possibly a dozen different types of tourist, each requiring different kinds of amenities and, for the most part, requiring them separately. At one extreme is the noisy, gregarious tourist; at the other, the solitary tourist who wants a mountain for himself. As a general rule, to provide for two or three different types of tourism in one place (and at one time) would be about right, though seasonal variations in the type of traffic may make possible a certain widening of scope.

Once the nature of the traffic has been determined, facilities and promotion can be developed to meet its anticipated requirements. To determine the correct phasing for a given area and circumstance is a highly delicate task. But it is becoming less of a problem with the growth of large-scale tourism (what has been called "le phénomène de massification") involving close cooperation between tourist operators in the tourist-exporting countries, on the one hand, and the governments and tourist industries in the receiving countries, on the other; by advance agreements guaranteeing a minimum flow of traffic in exchange for facilities, the time-lag between supply and demand can be resolved by negotiation. Nevertheless, phasing remains a problem for the part of the tourist trade that operates largely outside group arrangements.

Promotion and Propaganda

Since the development of tourism will benefit the whole community, it is appropriate that governments assume prime responsibility for publicity to promote the country and its tourism assets. Specialized advertising by airlines, travel agencies, hotels, and real

estate companies, as well as advertising for traditional national products, have much greater impact in promoting tourism if preceded by national publicity campaigns creating good will and interest for the country as a whole. (Knowing this, some governments require a contribution from the interests most immediately benefiting. In Switzerland, for example, the government levies 25 percent of the cost of its publicity from the beneficiary industries or localities and reimburses them 25 percent of the cost of their individual publicity campaigns.)

Promoting a satisfactory image for the country clearly goes much further than publicity. A great many activities—some serious, some apparently trivial—are designed essentially to ensure that the tourist goes away with a good impression. These activities might include customs and visa regulations and, in particular, the manner in which they are applied; or the issuance of tax-free petrol coupons; or even (as in France recently) a "courtesy campaign." They will almost certainly include steps to ensure that the tourist does not feel he is being exploited.

Regulation and Control

In an industry based so directly on consumer satisfaction, it is, of course, vital to maintain appropriate standards of quality and service. The question is to what extent the industry should be allowed to be self-regulating, and to what extent the government itself should lay down standards for the industry to follow. The answer will depend largely on the vigour of the private sector and its experience in providing for the needs and tastes of international tourism.

The field of pricing has proved to be extremely important to the development of tourism in recent years—one has only to consider the impact of such marketing devices as the "package" holiday that costs less than the regular air fare. As a result, the commercial aspects of tourism will almost certainly require government support and guidance in countries where the market has still to be built up.

As part of its regulatory functions, the government will also wish to coordinate the activities of the many private interests involved in the tourist industry. In part, this will be done through the liaison machinery of the national tourism organisation; in part, strategically applied inducements will help develop the government's priority tourist zones. Essentially, however, it is a matter of mutual cooperation and confidence between the government and the private sector.

Implications for the Community

When the tourist population outnumbers the resident population, some of the normal public services (e.g., transport) will become special tourist services, and they will be for the tourist industry to provide. Until that time, the provision of services adequate to the needs of both residents and tourists must remain the responsibility of the government or local authority.

A more fundamental problem is, however, raised by the growth of tourism. The introduction into a small and unsophisticated community of large numbers of people of very different standards and requirements may involve serious social strains, especially because the more sophisticated type of tourist generally tends to seek out the least sophisticated area. Government must ensure that the well-being of the national community is not jeopardised through the sometimes revolutionary changes that rapid tourism development may entail.

Foreign Relations

Governments handle what may broadly be described as the "foreign relations" aspects of tourism development. For example, it has lately been common for several countries to combine their efforts to attract a regional market, through joint advertising, joint development of neighbouring facilities, etc. Governments must also define the appropriate arrangements for the operations of foreign transport companies, tour operators, and investors. The foreign relations aspect of tourism grows more important as the tourism market itself increasingly initiates investments in and promotion of tourist facilities.

The Role of Direct Government Investment

The government will be well advised to spread the cost of tourism development among as many different interests as possible, including local authorities, banks, and private enterprise. In cases where the capital requirements for developing an area are heavy, however, a considerable part must be put up by the government, particularly in the initial stages. The major task will be to provide infrastructure. (Even here, the private sector can be involved; infrastructure investments can be financed through mixed companies in which public authorities, credit institutions, and private enterprise work together, with the state maintaining the directing role.)

Direct government investment in tourism superstructure (hotels, swimming pools, etc.) is normally undertaken primarily for pioneering purposes, with the idea that, in time, private enterprise will

follow suit. Once the momentum is launched, the government may transfer the operation either to the private sector or a mixed company. The Greek government, for example, has done this with hotels and proposes to do the same with its current programme of yacht-harbour construction.

Private investment, however, sometimes tends to concentrate unduly on facilities that have immediately attractive prospects. The government may, therefore, decide to invest in order to fill some deficiency in necessary or desirable tourist services or facilities. For example, the restoration of an ancient building may have little appeal to the private investor.

Whatever investing is done, it is particularly important that the accounting of public expenditures distinguishes clearly between profitable and unprofitable undertakings.

The National Tourism Organisation

In all countries, the official tourism organisation plays a leading role in formulating and implementing the government's programme. The functions of this body vary broadly according to the level of tourism development in the country concerned and the degree of direct intervention that the government wishes to exercise. Normally, tourism organisations handle:

- research, information, and promotion within the country;
- regularization of standards of lodgings and restaurants;
- control of activities of private travel agencies;
- publicity overseas;
- technical and juridical problems;
- international relations;
- development of selected tourist areas;
- over all tourism policy and promotion.

Where the government has a considerable direct investment in tourism projects, it is often preferable for these to be handled by a special agency; the national tourism organisation is usually ill suited, either by structure or composition, for close management of investment projects.

Whatever its tasks, the national tourism body must be given the powers necessary to carry them out. It must also be technically competent and recognized as such. The wide range of functions devolving upon it require a high degree of experience and professionalism, and the calibre and prestige of the organisation can be important factors in the effectiveness with which the government puts through its tourism policy. Finally, the tourism office must

recognize the limitations of its own mandate, however that may be defined, and maintain close liaison with all the other interests that may be involved in tourism development—the national planning organisation, other departments of government, and the private sector.

The tourist organisation must also be given the funds it needs. In some countries, the activities of the national tourism office are partly financed by means of a direct tax on tourists. As a general rule, this is not to be recommended; it tends to create customer resentment and, furthermore, tourism is already making a valuable contribution to tax revenue through its multiplier effect (see page 70). It has been suggested that the national tourist budget should be at least 1 percent of tourist receipts, although, for a country whose tourism development is still in its early stages, this formula would obviously be inadequate and the budget would have to be augmented in some other way.

There is clearly a correlation between the standing a government accords the tourism organisation and its estimates of the importance of tourism to the national economy. Tourism as a sphere of government concern is a new phenomenon. It has perhaps not fully "arrived" in government recognition. One of the tasks of the tourism planners is, thus, to convince government of the economic importance and "seriousness" of the tourism sector.

[Excerpted from Tourism Development and Economic Growth, Paris: Organisation for Economic Co-operation and Development, 1967. \$1.00, 41 pp. Document No. 21 563. Available in English and French.]

TRENDS IN INTERNATIONAL TOURISM

Somerset R. Waters

[Present trends in tourist travel do not favor the developing nations. Among the problems that need to be solved are health hazards, inadequate accommodations, insufficient publicity, and lack of "trained tourism technicians."]

International tourism has begun to attract attention as one of the leading growth industries in international trade. For the past fifteen years, world foreign travel expenditures have been increasing at an average annual rate of about 12 percent, twice the annual rate of increase in national income. Between 1958 and 1963, world tourism expenditures increased by 75 percent, compared with a 44-percent increase in world industrial production and a 45-percent increase in world trade in manufactures.

To countries with rapidly rising populations and in urgent need of new sources of foreign exchange, the opportunities offered by this new mass of free-spending tourists seem obvious. Another great appeal of tourism to the international economic planner is its relative stability and steady growth. Each country has natural attractions which are individually unique. Sightseeing is a product which can be sold over and over again without depletion of the original resources. Indeed, one surprising effect of the world-wide boom in tourism has been a dramatic increase in the economic incentive for both private and public organizations to preserve and keep alive examples of traditional local culture: craftsmen find new demand for traditional products; ancient cities

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are restored and provided with curatorial services; the old music and dances are revived and presented at festivals and fairs; museums get new appropriations—all in the name of tourist development.

Possibilities for Accelerated Growth

The International Union of Official Travel Organizations, in Geneva, estimated that in 1965 international travel receipts were \$11.5 billion, generated by an estimated 117.7 million foreign tourist arrivals. Of this sum, the US contributed \$2.4 billion, or one-fifth.

The relative importance of the US in international tourism has decreased in the past ten years as Europe, Canada, and Japan have reached new levels of prosperity. Nevertheless, the influence of the American traveler, for better or worse, is much greater than would appear from these figures. Of the \$11.5 billion total tourism earnings of all countries, approximately \$7.6 billion represents European earnings, mostly generated by frequent, short intra-European trips. Outside Europe, the US is the chief source of tourists for such places as India, Hong Kong, Japan, Egypt, Turkey, and Iran. Of course, in Canada, Mexico, and the Caribbean islands, the predominance of Americans is overwhelming.

If the present rate of growth of international travel continues, spending will reach \$44 billion within ten years, with US travelers contributing \$9 billion per year, excluding international fare payments to carriers. Economists who study the travel market, however, predict an even higher figure. This is because:

- 1) At present, US foreign-travel expenditure per capita is much lower than that found in many other countries—\$11.6 as compared to \$34.2 for Canada, \$21.2 for West Germany, \$24.4 for Scandinavia, \$13.5 for the United Kingdom, and \$12.2 for Australia and New Zealand. In fact, twenty other countries spend more per capita for the pleasures of foreign travel.

- 2) The probability of a family's engaging in international travel increases sharply as family income passes \$10,000. By 1975, the average personal income per household in the US should exceed \$11,300, and the number of families with real purchasing power of over \$10,000 should exceed 28 million.

- 3) Interest in international travel increases with education. The rapid rise in the number of college graduates indicates a broadening market for foreign travel.

4) International travel is dominated by two large groups, both of which are growing rapidly: a) young people before marriage or after marriage but before the birth of the first child, and b) middle-aged people before retirement. Both groups will have higher income and more leisure time in the future.

5) Air fares continue to decrease. Within three years, planes will carry 490 passengers at a time, which should make possible even lower fares.

In 1965, slightly over 7 percent of the US population traveled outside the country, with about 6 percent going to other parts of the Western Hemisphere and a little over 1 percent traveling in the rest of the world. As might be expected, most tourist dollars (46.5 percent) went to neighboring Canada and Mexico. Europe and the Mediterranean attracted 36.8 percent, the West Indies and Central America 8.6 percent, South America 2.6 percent, and the rest of the world 5.6 percent.

Who Travels?

The travel industry is not made up of people taking a once-in-a-lifetime trip. The average tourist is a collector of places, and his appetite increases as his collection grows. It is known that if the nontraveler can be persuaded to take his first foreign trip, then the chances are high that he will continue to take other trips. This outstanding characteristic—the fact that the tourist is a repeat visitor—reappears in every travel survey.

Some trends may be noted.

Visitors to both Europe and the Caribbean are getting younger and taking shorter trips. In the Caribbean, adults under 25 years have increased four times faster than other age groups since 1956, and now account for 18 percent of US travelers. Only 57 percent of all visitors spend more than one week in the Caribbean, as compared to 77 percent in 1956. In Europe, however, the tourist visited a number of countries, while in the Caribbean he tended to visit only one or two islands.

In South America, the trend toward younger travelers is less dramatic, and women make up a much smaller proportion of visitors. Visitors to the Pacific and Asia are considerably older, with a larger percentage of retired people. The lack of low-cost promotional air fares in this part of the world probably accounts for this.

Unfortunately, present trends in tourist travel do not favor the developing nations. The share of world tourism captured by the

industrialized nations is increasing. About 80 percent of world tourist receipts now go to the developed nations, and only about 20 percent to the underdeveloped.

What are the chances of changing this trend? Is it realistic for the developing nations to hope to attract a much larger number of tourists in the coming decade?

Barriers to Travel to the Developing Nations

Among the number of barriers which tend to limit travel to the developing nations, the four which seem outstanding are:

- 1) The health barrier—fear of sickness;
- 2) The facilities barrier—lack of modern accommodations;
- 3) The information barrier—lack of funds for advertising and publicity;
- 4) The administrative barrier—lack of trained tourism technicians in government and private industry.

Probably the one greatest hurdle is the health barrier. This is seldom mentioned in travel-industry circles. It does not appear on the agendas of international meetings of tourist officials. Little research has been conducted on the incidence of sickness among tourists visiting the developing nations.

One disease, the common "tourist diarrhea," is probably the outstanding cause of fear of travel in the less developed nations. To date, medical science has failed to identify the specific agent which causes so much worry and discomfort to international travelers. A well-financed medical research program aimed at identifying the causes and determining the proper drugs or inoculations to protect the traveler against "turista" could be one of the most practical paths to assisting the economies of the developing nations.

Providing modern hotels and other necessary facilities often requires either direct government investment in needed facilities or government provision of low-interest loans and other incentives to private organizations. In countries with limited capital, it is often politically difficult to give higher priority to, say, building a luxury hotel for the use of foreigners than to building factories, roads, or public utilities badly needed by the local population.

Inability to compete with the industrial nations in advertising and publicity stems from the lack of understanding on the part of political bodies of the need for such programs, and the inability of government officials to administer the expenditures of promotional funds wisely once they are allocated.

The other great barrier is the lack of trained tourism technicians to serve in government agencies and in private organizations to plan and execute the many essential tasks required in developing a successful tourist industry. There is a need for educational institutions to provide training in this relatively new field of international commerce.

On the other hand, the picture is not all dark. Many of these newer nations have the sunny climate which makes possible year-round travel. They are well supplied with natural wonders and exotic sightseeing attractions. Labor is plentiful and cheap—a key element in a service industry. The experienced traveler is always in search of a new destination. Air fares are decreasing. And, finally, there is the example of the underdeveloped countries which have already made the transition from isolation to popular tourist destinations; Puerto Rico, Jamaica, Mexico, Greece, India, Jordan, Israel, Egypt, Yugoslavia, Thailand. They have set a pattern which can be followed.

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TOURIST RECEIPTS
Expressed as Percentage of Total Foreign Exchange Receipts, 1964

Argentina	2.3%	Jamaica	12.9%
Bolivia ('63)	2.3	Jordan	24.4
Brazil	0.8	Malta	4.7
Burma	0.04	Mexico	38.4
Ceylon	0.3	Morocco	10.6
Colombia	2.3	Panama	8.0
Cyprus ('63)	9.8	Peru	3.9
Ecuador ('63)	4.3	Philippines	1.6
El Salvador	2.6	Spain	43.2
Ethiopia	1.5	Thailand	5.1
Greece	13.6	Tunisia	6.3
Guatemala	2.7	Turkey	1.4
India	2.2	UAR	9.9
Iran	0.7	Uruguay	15.1
Ivory Coast	0.2	Yugoslavia	5.5

Source: The UNESCO Courier. Paris: December 1966, p. 12.

PROMOTING TOURISM IN THE EAST CARIBBEAN

J. R. Sargent, et al.

[Expanding tourism in the Caribbean will require, above all, attracting middle- and lower-income travelers on a year-round basis. This, in turn, will require provision of more activities and amenities, as well as more effective tourist development organizations.]

One of the export industries in which the smaller islands of the Eastern Caribbean appear to have a natural advantage is the "invisible" export of tourist services. There is a comparatively small supply of accessible tropical islands in the world which can offer sun, beaches, and scenery, and the Eastern Caribbean islands form a large part of that supply. Furthermore, the area is among those nearest to the great concentration of population in the north-eastern US and eastern Canada and relatively near to Europe.

Benefits of a Tourist Industry

The building up of a tourist industry can play a very important part in the development process. Once the decision is taken, investment in tourism can take place very rapidly. In the early stages, the infrastructural requirements are not very great, being, principally, adequate air communications and roads to the hotel sites. Even water and power can, initially, be left to the hotel-developer, though this may act as a disincentive for him. The investment, thus, can consist almost entirely of private foreign capital, making few demands on scarce local capital

J. R. Sargent and his six colleagues are independent economists. They were appointed by the governments of the UK, Canada, and US to whom their report was submitted.

resources. Very few key personnel need to be imported, and most of the requisite labor force can readily be trained locally if adequate provision is made.

Tourism as a generator of employment compares favourably with light manufacturing industry in relation to sales volume and capital investment. The investment in hotels required to create one job—about BWI \$20,000 [1 BWI\$=US\$.60]—is very similar to the investment required in light manufacturing. Furthermore, according to studies made in Puerto Rico, approximately an equal number of jobs is created outside hotels in directly related service industries, such as taxi driving, maintenance work, restaurants, bars, laundries, retail shops, travel agents, hairdressing, etc.; these require very little capital investment, so that the figure of BWI \$20,000 per job created comes down to something like BWI \$13,000. Today employment in tourism suffers from being highly seasonal (and, unfortunately, the season coincides with the sugar-cane cutting season). However, if a soundly based, year-round industry is created, this problem will be solved automatically.

In addition, employment is created in the construction industry which is approximately the same as is created in the hotels after they are opened. This employment should be reasonably continuous as long as the tourist industry continues to expand. When expansion slows down, incomes are likely to have been raised sufficiently for a sizeable demand for private residential construction to have been built up.

The benefits of tourist development are diffused widely through the economy, affecting all parts of the service sector and construction. Considerable additional demand for foodstuffs is generated, much of which could be met by local producers if they adapt their production methods. Many aspects of the tourist industry—small hotels, restaurants, laundries, retailing, taxis, sailing and fishing facilities, etc.—are well suited to being provided by local enterprise and capital.

An influx of tourists may have its disadvantages, but it provides opportunities if people are ready to grasp them. Among the tourists, there may well be potential investors. Many businessmen are favourably inclined to investing in an area where they can also take a vacation. The next stage after tourism may well be the development of light manufacturing, since considerably increased local demands are created, and potential producers are brought into closer touch with overseas market opportunities. Much of the infrastructure and services required by the tourist industry are also needed by light manufacturing as it develops.

The Problem of Seasonality

A low rate of occupancy is the major problem facing the tourist industries in the Eastern Caribbean. In Antigua, the average annual rate was 31 percent in 1965; in Barbados, between 35 and 45 percent; in Grenada, between 55 and 60 percent; and in St. Lucia, 50 to 55 percent. In fact, in all the islands the hotels are effectively full to capacity only from the middle of January to the second half of March. The months of May, June, September, October, and November all show disastrously low occupancy rates. As a direct result, expansion of capacity has slowed down considerably.

Low occupancy rates can, of course, be offset by high charges, and this has already been done to some extent in Antigua and Barbados. But there is a limit to the rates which can be charged, even at the height of the short winter season. If daily rates are raised too high, business will be lost to hotels in other winter resorts in the area. Already the average price of a bed at half double-room rates in the winter season in luxury and A-class hotels in Barbados is 30 percent higher than the average price in San Juan. The differential between Antigua and San Juan is even greater.

Other Restraints

Other restraints exist also, but they are secondary to the seasonality problem.

Land acquisition. The difficulty of acquiring land is more marked in some places than others; it takes the form of uncertainties over the conditions imposed on developers and of administrative delays.

Air services. In spite of a plentiful supply of airports in the islands, problems arise from inadequate facilities, such as severe restrictions on the use of many airfields, inconvenient schedules, and lack of direct service in some instances. A comparative lack of low-cost airfares can no doubt be solved in time through negotiations within the International Air Transport Association.

Hotel staff. There is already an acute shortage of properly trained and experienced hotel managers throughout the islands, and the same may be said for senior staff. This shortage will be a very serious brake on tourist development if steps are not taken concurrently with, or better still, a little ahead of hotel development. A shortage of skilled building labour would also no doubt emerge rapidly if a large programme of construction were undertaken.

For purposes of training, hotel staff seem to fall most conveniently into three groups: 1) the comparatively unskilled, such as maids, waiters, kitchen staff, and assistant barmen; 2) the more skilled supervisory staff in the kitchen, dining room, bar, house-keeping, reception, and office areas; and 3) the management. The training of the first group could be carried out in each island as part of the local technical training facilities; the second group could be trained in one or possibly two regional catering schools. The third group, certainly in the next few years, will have to be sent to North America or Europe for training.

Services. Inadequate provision of services such as electricity, water, telephones, and access roads is a problem, although not usually an insuperable one; developers can, at some cost, provide these services themselves. Probably the most discouraging aspect of the situation is the high degree of uncertainty about the provision of these services by the authorities. They may promise to supply them, but great delays are experienced in implementing the promises. This is just one aspect of the problem of the absence of a clear policy on tourist development on the part of island governments—the priority to be given to it, the preservation, restoration, and development of sites, historic and scenic, and the provision of tourist amenities generally.

Tourist boards. The comparative ineffectiveness of most tourist boards, largely, but not entirely, due to lack of funds, is no doubt a restraint on growth. The tourist boards are sometimes dominated by the attitudes of the established hoteliers, who are not interested in expansion of the industry as a whole, but are concerned to improve the position of existing hotels. Except for the Barbados board, all are very short of funds. Seldom do they have more than one full-time employee, sometimes not even that.

Most of these boards are thought of primarily as tourist promotion (i. e., advertising) bodies, and not as tourist development bodies—that is, as organizations concerned with finding potential investors and coordinating the different aspects of tourist development: hotels, airlines, travel agents, package-tour wholesalers, overseas representatives, local service industries, taxis, training facilities, etc.

If tourist development is to move forward rapidly, it is essential that there be a person, adequately supported by funds and staff, concerned with forward planning. It may be desirable, once the decision has been taken to give tourist development a high priority, for the income of the tourist board to be related to the number of visitors recorded as coming to the island in the previous year, say at a rate of BWI \$10 a head, at least some of which might possibly be raised from the industry by means of a bed tax.

Objections to a Large Tourist Industry

It is frequently argued that it is dangerous to rely on tourism as a major export industry. It is said to be subject to the vagaries of fashion and to be sensitive to political disturbance and the effects of economic recession. There are two points here. If a tourist industry caters only to a narrow range of tourists, for instance high-income tourists seeking winter sunshine, it may indeed be subject to the vagaries of fashion. But if it is catering for a broad spectrum of tourist requirements—i. e., high-, middle-, and, if possible, low-income groups from a variety of areas, providing them with winter and summer holidays and different types of facilities—then tourism is no more subject to fashion than is the textile industry, for instance. Secondly, although, as a service industry, tourism is rather more sensitive to political and economic conditions than are primary producing or manufacturing industries, it has the advantage of catering for a very rapidly expanding market; this tends to iron out short-run fluctuations.

In all the islands, there is widespread recognition of the tourist potential of the area, but there is also a general reluctance to encourage tourism development actively. This ambivalence—whose strength varies from island to island—seems to be based on several factors. Tourism is seen as a powerful force for change in the economy, and this in itself is feared, particularly by the conservative middle class. There are fears that wage rates will rise and that this will necessitate extensive changes in agricultural practices (these fears would result from the introduction of any powerful force for change in the economy). The higher-income groups fear that the amenities they enjoy will have to be shared with foreign visitors. They express fears, which arise from the particular nature of tourism, that it will introduce an alien way of life that will submerge local cultures just as the islands are emerging into full self-government; that large-scale tourism will destroy the character of the islands and bring in its train undesirable features.

The worst fears seem to be based on a vision of the islands' all becoming imitations of Miami Beach, with entirely tourist economies, for example Bermuda and the Bahamas. There is undoubtedly some justification for these fears, but with well-planned development the worst features can be controlled, if not eliminated. In any case, all economic growth involves changes in attitudes and, to some extent, in cultures.

In fact, there are severe economic limitations on this type of development, to say nothing of social and political objections. A more realistic picture is to see the tourist industry developing as one of the major industries of the islands, but by no means the

only one. For the sake of the sound development of tourism itself, let alone the political and social self-respect of the island populations, it will be essential to preserve and encourage the distinctive differences in culture and traditions among the islands.

A Programme for Tourist Development

If the eight islands are to expand their tourist industries, the first priority is to solve the seasonal problem. The corollary of the islands' becoming year-round resorts is the necessity of drawing on the middle- and, as far as possible, lower-income markets, as these groups will form the overwhelming majority of travellers going abroad from North America and Europe in the second half of the 1960s. The successful tourist programme of Puerto Rico has, significantly, tapped a very different tourist market in the summer from that drawn on in the winter. In the third quarter, July to September, only about 35 percent of visitors were in the high-income group—that is, with incomes of over \$10,000—as compared with almost 70 percent in January-March. Almost 20 percent of third-quarter visitors had incomes below \$5,000. In contrast, most visitors to the islands considered here, certainly in the winter, are in the high-income group.

As year-round tourism develops in the islands, it is almost certain that the average age of visitors will fall, along with the average income. If the islands are to attract a younger, middle-income group of visitors, they will have to offer many more activities and amenities than they do at present. The present basic formula of sun and beach during the day with barbecues, steel bands, and occasional crab-racing during the evening may meet the requirements of the rather more elderly winter visitors, but will not be enough to attract a large number of visitors all year round. This does not mean that in order to build up a flourishing tourist trade in the islands it is necessary to cover them with a rash of casinos, bars, hot-dog stands, and neon lights. What it does mean is that visitors must be provided with a choice of things to do: sports such as water skiing, surfing, snorkeling, horseback riding, excursions by boat, and, in the evening, a choice of restaurants and night clubs, beach barbecues, and dancing. At present, the demand for all these facilities and amenities is slight, and it is not possible to provide them on the highly seasonal basis now required. But it will be essential to build up these services and amenities as the seasonal nature of the industry is reduced.

The process of changing the image of the Eastern Caribbean tourist industry from that of a high-priced winter resort for the wealthy to that of a moderately priced year-round resort for all is not one which can be carried out effectively on an uncoordinated basis. The

net effect of eight individual island campaigns would be immeasurably less than that of one well-directed campaign employing a quarter of the amount of money.

Most tourists will want to visit more than one island. Clearly there is scope for individual island promotion, just as there is for individual hotel promotion, but this must be secondary to, and support, area promotion. All the islands have a common interest in this matter. The fact that new tourist industries will grow up in islands where there are none at present will not draw off visitors from the established centres but will merely strengthen the position of the area as a whole.

[Excerpted from Report of the Tripartite Economic Survey of the East Caribbean. London: Her Majesty's Stationery Office, 1967. £2.10s.]

THE IMPACT OF TOURIST EXPENDITURES

Harry G. Clement

[As money brought into an economy by tourists is spent and respent, it generates additional national income. According to this study, which covered 17 Far Eastern countries, a conservative estimate is that every \$1 spent by a tourist will result in over \$3 in economic activity during the same year.]

How can we measure the economic impact of the money that tourists spend? Typically, this is done by simply citing estimated expenditures by tourists and letting it go at that. But this figure requires much further analysis.

Effect on National Income

Everyone knows that the money spent by tourists does not stop moving after the tourist spends it. Instead, it circulates through the economy. The more times it changes hands and the more times it is spent, the greater the economic impact on the economy. This "turnover," or "multiplier," effect of the money that tourists spend varies from economy to economy, but it can be measured or at least approximated.

Usually, within a twelve-month period, the money has ceased to have a really substantial impact on the economy. This is because of "leakages" which occur when money goes out of an economy to buy imports or to be invested abroad or when it does not move within the economy.

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In countries where there are substantial leakages or slow turnover, the money spent by tourists seems to turn over between 3.2 and 3.5 times a year before it disappears. This figure would probably apply to such countries as Cambodia and Thailand. In more highly developed economies, there is less leakage and a higher limit, perhaps 4.3, would probably apply. In order to be conservative, we have throughout this report used a multiplier of 3.2.

Figures 1-5 comprise models of the turnover of tourist expenditures (after arrival in a country) for accommodations, food, souvenirs, sightseeing, and local transportation in economies having high leakage. They are based on conservative estimates. For example, the salary and wage component has been taken as a low percentage of each category of tourist spending. (The higher the wage component, the higher the turnover of the tourist dollar is likely to be.) Again, in the category of "purchases," it has been assumed that only 30 percent of what tourists buy consists of locally made items using local materials, the rest being assumed to have been imported in whole or in part. Conditions will obviously vary between countries. However, we have found that, even when different combinations of breakdowns were used, the final figure for annual turnover was only slightly different. The multiplier of 3.2 is the lowest that can be produced under any reasonably accurate set of circumstances.

When the total of estimated expenditures by tourists is multiplied by 3.2, the result is the minimum amount of business generated by tourist expenditures during a twelve-month period. The figure, in effect, is the amount of national income that is created by tourism.

Effect on Tax Revenues

If it makes sense to measure the economic importance of tourism by the business that is generated by the money tourists spend, it also makes sense to measure tax revenues from tourism in the same way—that is, by determining how much in tax revenues accrues to governments from business that is created by tourist expenditures. This is so because, without the spending by tourists, the business that depends on tourism would not be generated and hence there would be a proportionately lower level of tax revenues.

Occasionally, governments have tried to estimate the direct tax revenues from tourism, for example hotel taxes and amusement taxes. But this is a static approach that gives a distorted result. What counts is the total amount of tax revenues, both direct and indirect, that would not accrue to the government if there were no tourism.

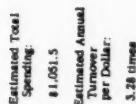
Note: Arrows point to dollars changing hands)



**Estimated Total
Spending:**
\$154.5

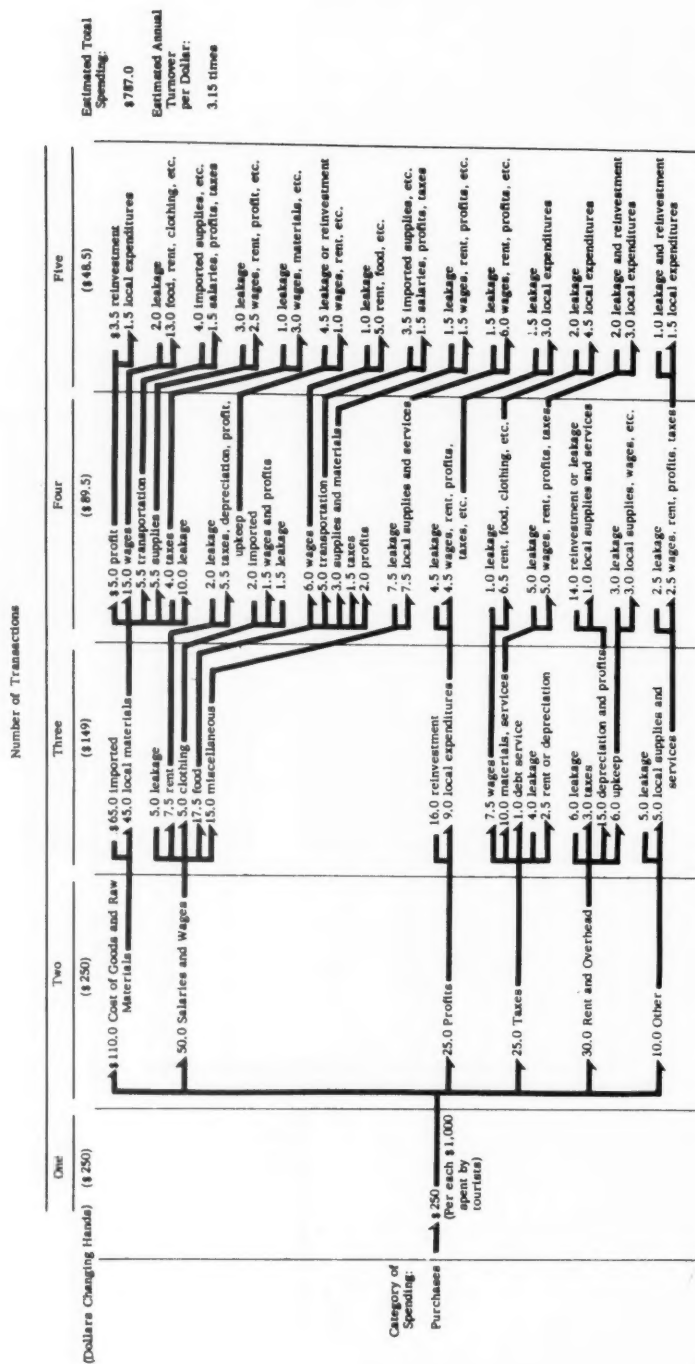
Estimated Annual
Turnover
per Dollar:
3.42 times

Note: Arrows point to dollars changing hands)



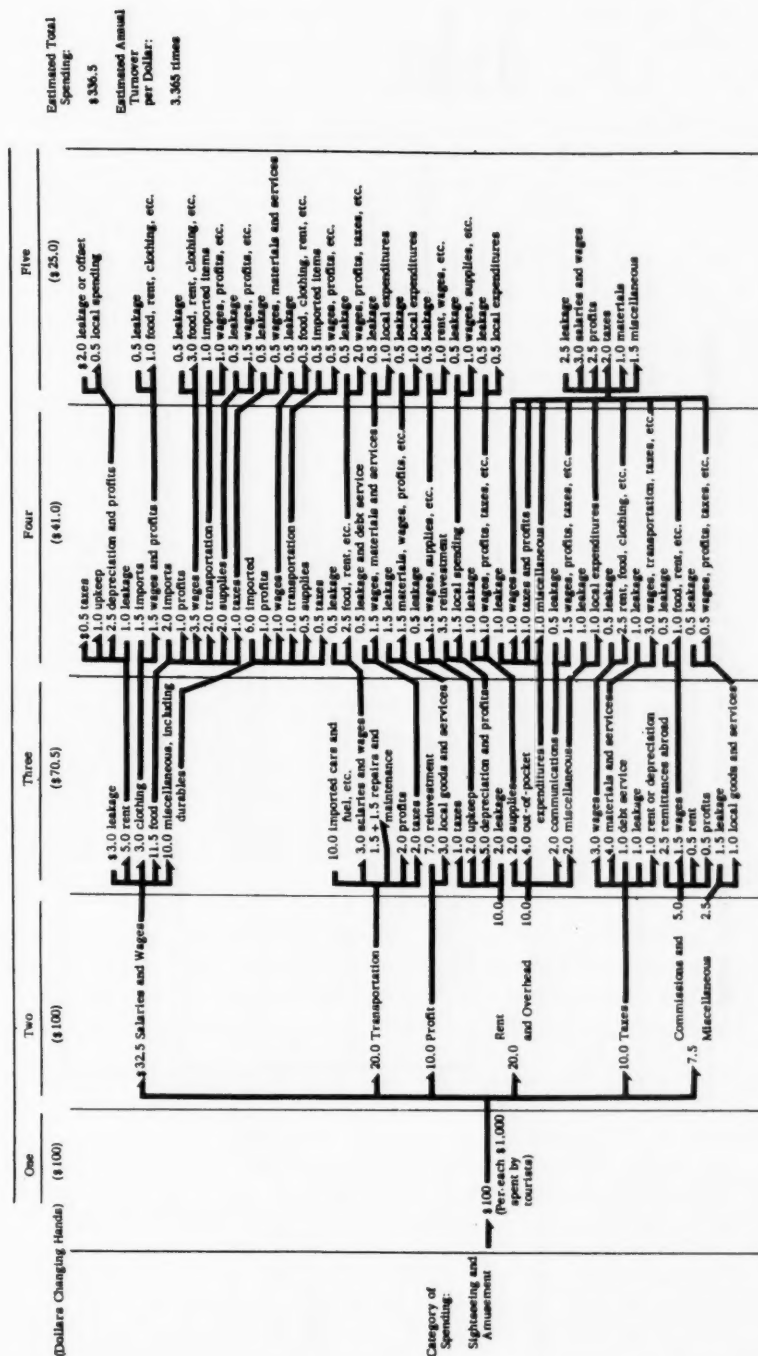
Model of Estimated Annual Turnover of Tourist Expenditures for Purchases

(Note: Arrows point to dollars changing hands)



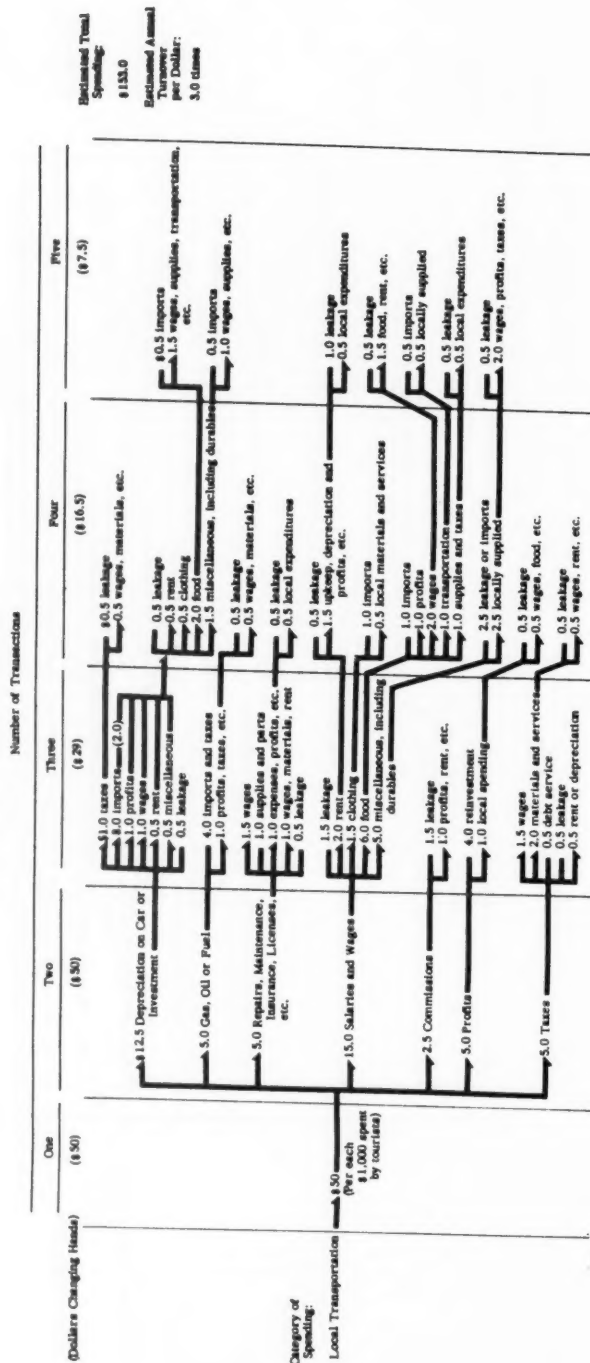
(Note: Arrows point to dollars changing hands)

Number of Transactions



Model of Estimated Annual Turnover of Tourist Expenditures for Local Transportation

(Note: Arrows point to dollars changing hands)



Columns two, three, four, and five on figures 1-5 all contain a series of items called "taxes." The total of all the tax items on these figures is \$320, or about 10 percent of the business generated. Where it has been possible to check overall tax revenues against total national income, the result has also been close to the 10-percent mark. Conservatively, then, we find that, for the period of our study, tax revenues accruing to Far Eastern and Pacific governments as a result of tourism can be estimated in this way: total annual expenditures by tourists $\times 3.2 \times 10$ percent.

Development of cost/benefit ratios. Beyond this rather simple application of the multiplier effect of tourist spending, however, it is possible to develop some meaningful cost/benefit ratios. Unfortunately, some extremely misleading cost/benefit figures covering various aspects of tourism have been released from time to time. For example, total expenditures by tourists are sometimes compared with the budgets of tourism organizations, or even with advertising budgets. These comparisons are not valid because they are not comparing similar things.

It is possible, however, to compare 1) the amount of money a country spends to run its tourism program with 2) the amount of money its government gets in tax revenues on business generated by tourist spending. With respect to the latter, we have already explained how reasonably accurate estimates can be made. With respect to the former, the problem is one of holding to consistent definitions. Some countries include all kinds of extraneous items in their tourism budgets—power plants, road construction and maintenance, travel agency operations, and the operation of hotels. Our feeling is that valid comparisons can be made between tax revenues and the budgets of tourism organizations if these budgets are adjusted to eliminate all items not directly related to running an official tourism development organization.

There tend to be two ranges of cost/benefit ratios for countries that have successful tourist programs. One range—roughly between 5 to 1 and 30 to 1—occurs for countries that are not highly industrialized and that are heavily dependent on, or have a growing economic dependence on, tourism. The second range—roughly between 50 to 1 and 100 to 1—obtains for countries that are highly industrialized and less dependent on tourism.

By itself, a cost/benefit ratio can be misleading. It will show a finance minister what he is getting for what he spends on a tourism program. But a high cost/benefit ratio can result from governmental failure to give financial support to tourism. And a low cost/benefit ratio will prevail for a few years until the results of a stepped-up program pay off in the form of more tourism. Finally, a low cost/

benefit ratio can indicate that a tourism budget is being ineffectively spent.

Effect on Jobs and Wages

What is the role of tourism in creating jobs? What is the effect of tourist spending in building up wages and payrolls?

An indication of the situation can be obtained from an examination of the multiplier effect on the money tourists spend. On figures 1-5, items for wages and salaries total around \$540. What this means is that, in the course of five transactions during a one-year period, \$1,000 spent by a tourist will result in economic activity that will pay out about \$540 in salaries and wages. A percent relationship based on these figures can be applied to the Pacific and Far Eastern countries in this way: total annual expenditures by tourists x 54 percent.

In 1958, in the Pacific and Far East, expenditures by international tourists created wages and salaries totaling roughly \$107 to 114 million. The precise number of jobs involved can only be approximated because of the wide fluctuations in wage and salary scales. If it is assumed that the average annual income of persons employed in businesses created by the turnover of tourist expenditures is about \$1,000 (or considerably above the average per capita income of the countries covered here), it would mean that over 100,000 full-time jobs were created by tourist spending in 1958.

Claim on Resources

The question arises, what does each country give up in order to attract a given number of tourists, and in order to gross a given amount of money?

Essentially, tourists are a drain on two different kinds of resources. The first consists of what might be called community facilities—for example water, electricity, fuel, public transportation, and services provided by the police and other community-operated departments. The second consists of goods and services specifically provided for, or used primarily by, tourists—for example, food and accommodations, tours, shopping, entertainment, and things to do.

There is an important difference in the extent to which tourists use these two categories of resources. Tourists have an inelastic demand for community facilities such as water or electric light, but they have an elastic demand for what we have called "special goods and services." They will spend a little or a great deal on shopping.

The amount they spend on accommodations and food will vary greatly and often becomes indistinguishable from entertainment, for which there is an even more elastic demand.

Keeping in mind these two types of drains on resources, it is then possible to find the net income from tourism for a given country or area. The total, or gross, income from tourism obviously equals the number of tourists per day multiplied by their average length of stay and average expenditures. If more tourists come and/or stay longer, the drain to the economy from greater use of both community facilities and special services will be greater. But if increased income from tourism results only from a higher average expenditure per tourist per day, then the drain on community facilities will be little if any higher than otherwise. Only the drain on special services will rise. The result will be a higher net income from tourism.

Thus, the rapidity with which tourists spend money over a given span of time is an important factor. It tends to reflect not only net income from tourism but also the "efficiency" of the travel plant—that is, the success a country has in getting tourists to spend a fair amount of money in relation to their length of stay. Thailand, Philippines, and Korea are all relatively "efficient" in this sense.

Nevertheless, several qualifications should be kept in mind. First, this "efficiency" obviously does not measure the size of any country's tourism business. Nor does it measure a very important factor—the amount of time the travel plant lies idle in the off-season. On the other hand, it does reflect the extent to which a country has succeeded in providing first-class accommodations, enough things to see and do, and adequate shopping.

Effect on Balance of Payments

Spending by international tourists is bound to have a positive effect on the balance-of-payments position in any country. Without these expenditures, the exchange position of the Pacific and Far East would be weakened by some \$200 million. Although some countries got considerably more than others, the fact remains that, without expenditures by international tourists, the majority of countries in the Pacific and Far East would have had a weaker balance-of-payments position and many would probably have been forced to cut back on imports.

Appraisal of central bank data. Most central banks release estimates on the amount of foreign exchange spent by international tourists. These data are gathered in various ways, and different definitions have been used as to what constitutes an expenditure by an

international tourist. Typically, estimates by central banks tend to be on the low side, for a combination of reasons.

- 1) Some countries have black-market situations, and hence traveller's checks, bank drafts, and foreign currency tend to stay out of the central banking system.

- 2) In countries where there are exchange restrictions of various types (particularly on overseas travel by residents), there is a tendency to withhold foreign exchange for personal use.

- 3) In some countries, businessmen constitute a high proportion of visitors; such travelers may have a considerable portion of their expenditures paid for them in local currency by business associates.

- 4) Finally, some central banks will count expenditures by foreign visitors as "tourist expenditures" only if required exchange-control forms specifically state that the purpose of making the currency conversion is "tourism."

In all four situations, expenditures by tourists constitute a form of income and should be counted as such. In all except the third, tourist expenditures directly or indirectly bolster the country's exchange position.

Negative demands. We have already pointed out that inbound tourism is a plus factor in the balance of payments. But it contains negative elements. These include:

- 1) Need for imported materials, supplies, and equipment to build and run hotels;

- 2) Remittance of interest and profits on overseas capital needed for hotel construction;

- 3) Foreign currency costs of running a tourism development program, including overseas promotion and advertising;

- 4) Foreign currency costs of imported items for consumption by international tourists, including foods, beverages, fuel, and special supplies.

It is beyond the scope of this paper to make a country-by-country analysis of the net exchange earnings derived from inbound tourism, although such a project could be carried out by subtracting from total tourist expenditures: 1) the foreign currency costs of hotel construction, amortized over the life of the hotel; 2) the annual

remittance of interest and profits on overseas capital needed for hotel construction; 3) the annual costs of overseas operations that are part of a tourism development program; and 4) the imported items needed by tourists.

[Excerpted from The Future of
Tourism in the Pacific and Far East.
Wash. D. C.: Government Printing
Office for the Commerce Department,
1961. \$4.00. 295 pp. Out of print.
Limited number available on loan
from Checchi and Co., 815 Connecticut
Avenue, N. W., Washington, D. C.
20006]

THE LIMITS OF TOURISM AS A GROWTH GENERATOR

J. R. Sargent, et al.

[Although tourism is a promising export industry, the foreign exchange thus earned can easily be dissipated by a "high propensity to import." Antigua's experience is instructive for small territories in the Caribbean and elsewhere that depend on imports for many of their basic needs.]

Much importance attaches to the question of how heavily the approach to economic viability at a reasonable rate of growth can be made to lean on the continued or accelerated expansion of tourism. Antigua has gone further in the development of tourism than any other territory in the Eastern Caribbean except Barbados (about which less information is available) and therefore exhibits the effects of an experience which most other islands have yet to meet. The following discussion—which relies heavily on a study of the tourist industry in Antigua by Dr. Carleen O'Loughlin [Financial and Economic Survey of the Hotel Industry in Antigua, University of the West Indies, Institute of Social and Economic Research, 1964]—is based on extremely rough estimates and must be regarded as mainly illustrative.

The total expenditure by tourists in Antigua in 1964 amounted to BWI\$11,069,000 [1BWI\$ = US\$.60] distributed as below among the sectors which were its immediate recipients:

A second article by J. R. Sargent, et al. appears on page 63.

Table I (in BWI\$ 000)

Distribution	3,050
Transport	900
Finance	276
Hotels	5,450
Services	225
Rent of houses	255
Direct personal services	890
Direct licenses from government	23
	<hr/> 11,069

This represents, however, only the first stage of the impact of tourist expenditures. The hotels, for example, spent part of their receipts on buying supplies from the distribution sector, which in turn paid for services from the transport sector, and all the sectors shown above made payments to sectors not shown—for example to the construction sector for maintenance work. Some of the receipts were spent on imports and some went to the government in indirect taxes. From our knowledge of these inter-sectoral flows, the destination of the BWI\$11,069,000 may be traced as follows:

BWI\$4,441,000 (40.1%) went to pay for imports;
 1,310,000 (11.8%) went to the government, mainly
 as indirect taxes, but some as
 payments for services rendered;
 5,318,000 (48.1%) accrued in Antigua as income
 before direct taxes.

These results show that, of every tourist dollar, only about half passed directly into the income of Antigua residents, although another 11 cents may have passed indirectly via government revenue and expenditures.

Effect on Income

From our knowledge of the extent to which each sector's sales were made to tourists, and on the assumption that its inputs can be divided in the same way, it is possible to estimate the extent to which income generated in each sector of the national product was due to tourism. This income was widely distributed, more than half of it accruing outside the hotel sector. Some other sectors were quite heavily dependent on tourism as a source of income; for example, transport was 46.2 percent dependent on tourism, finance 32.5 percent, and services 31.5 percent.

More relevant to the problem of growth, however, is the question of the impact a given increase in the level of tourist expenditure

might make. Assuming the pattern of the economy remains as it was in 1964, an increase of BWI\$10 million in tourist expenditure will generate the following results:

Table II (in BWI\$ 000)

Increase in G. D. P. (factor cost)	5,850
Increase in indirect taxes, airport dues, etc.	<u>2,880</u>
Increase in G. D. P. (market prices)	8,730
Increase in imports	7,400
Increase in personal consumption	5,400
Increase in exports of government services (airport, etc.)	730

The substantial rise in imports, amounting to over 70 percent of the foreign exchange receipts from increased tourist expenditure, is due partly to the high import element in the costs of the tourist industry, partly to the import content of other sectors which supply the tourist industry, and partly to the import content of personal consumption, which is assumed to rise with income. The increase in gross domestic product (G. D. P.) at factor cost consists of increased wage and salary payments and profits in the sectors directly involved in serving tourists (hotels, etc.), in those indirectly involved as suppliers of goods and services to those directly involved, and in all sectors as a result of the increased consumption which is assumed to follow increased income.

The ratio of the increase in G. D. P. to the increase in tourist expenditure which stimulated it is rather small, and this is due to the high import content of expenditure. Taking into account that some of the additional BWI\$5,850 would be transferred to overseas hotel owners, the increase in gross national product would be rather less.

Capital Requirements

But have we exhausted the multiplier effects of additional tourist expenditure? Something we have not yet taken into account is the capital investment required to support it. As far as hotels are concerned a certain amount of data is available. Evidence from Puerto Rico, confirmed by some enquiries in the other islands, indicates a capital requirement of BWI\$25,000-30,000 per room. About half of Antigua's 1964 tourist expenditure went directly to hotels, which then had about 700 rooms. On this basis, an expansion of BWI\$10 million in tourist expenditure would require a further 650 rooms, given existing occupancy rates, or an investment of BWI\$16-19 million between 1964 and 1970. Altogether we might suppose that,

over this period, a gross output from the construction industry of BWI\$27-30 million, or BWI\$4.5-5 million per annum on average, would provide the capital investment needed to sustain, in 1970, a level of tourist expenditure BWI\$10 million above that of 1964. From this gross output, the net output of the construction industry, or its contribution to the G. D. P., might be around BWI\$2 million per annum.

When the effects of this are added to those of the increase of BWI\$10 million in tourist expenditure itself, taking account again of the multiplier effects on the output of other industries, on income, and on consumption, the result in 1970 might be as follows:

Table III (in BWI\$ 000)

	Increase in exports	10,730
	Increase in investment	3,000
	Increase in consumption	7,350
less	Increase in imports	-9,770
	Increase in G. D. P. (market prices)	11,310
less	Increase in indirect taxes	-3,330
	Increase in G. D. P. (factor cost)	7,980

The effect of the increased tourist expenditure in creating opportunities for growth is not yet exhausted. For example, we have not yet allowed for capital investment outside the tourist sector, including private housing, which will probably be called for by the rise in the general level of income and consumption. Moreover, the extra revenue accruing to government, not only from indirect taxes and import dues but also from direct taxes on the incomes generated, will allow a higher level of spending within a balanced budget.

Balance-of-Payments Effects

But before these further effects are considered, we have to take note of an important obstacle to growth which is illustrated in these tables. The rise in G. D. P. associated with an increase of BWI\$10 million in tourist expenditure is accompanied by a rise in imports of not much less than that in exports. Consequently, further internal expansion, such as investment in housing or higher government expenditure on education, will tend to move the balance of payments into deficit. This occurs not only because these expenditures themselves have an import content (and yield no exports), but because they have a multiplier effect on income and consumption, which also have an import content and rather a high one. In Table IV below we extend Table III to include a third round in which government spending has risen by BWI\$2 million, well within the margin of extra revenue:

Table IV (in BWI\$ 000)

Increase in exports	10,730
Increase in investment	3,000
Increase in consumption	9,380
Increase in government spending	2,000
<u>less</u> Increase in imports	<u>-11,190</u>
Increase in G. D. P. (market prices)	13,920
<u>less</u> Increase in indirect taxes	<u>- 3,730</u>
Increase in G. D. P. (factor cost)	10,190

The increase in imports now exceeds that in exports, and will clearly do so all the more, the greater the increase in government spending.

Implications for Growth

This analysis illustrates vividly how economies that are heavily oriented towards exports and imports may be in difficulties as they strive to grow, especially when the possibility of expanding traditional exports has diminished. These difficulties have two aspects, both of which reflect the fundamental problem of the high import content in their expenditures: first, their response to growth-stimulating influences, external or internal, is sluggish. The demand generated slops over, as it were, into the sea. Second, the high propensity to import also means that a process of expansion, once under way, can be sustained only if a correspondingly high proportion of the extra output is exported or goes to reducing the import bill.

In the case of the tourist industry, this requirement is automatically satisfied. Tourism is, par excellence, an export industry able to attract overseas capital. At least as far as foreign exchange is concerned, it is self-balancing. But it is rather startling that it is not much more than that. The effectiveness of tourism as a growth generator, therefore, depends on reducing not only its own import content but that of expenditure in general. In other words, growth policy cannot be based on expanding tourism alone. The tourist effort will have to be supplemented by a major effort in the direction of import substitution.

[Excerpted from Report of the
Tripartite Economic Survey of
the East Caribbean, op. cit.]

A Post-script on Domestic Tourism

As articles not included in this section point out, there are strong arguments for governments giving at least equal emphasis to promoting domestic tourism—that is, travel by their own nationals within their own country—rather than concentrating exclusively on attracting foreign tourists.

1) Most expenditures on tourism are actually made on domestic travel. According to present estimates, more than three-fourths of total world expenditures for tourism are domestic.

2) The number of foreign visitors, especially if they come in only one or two seasons, may not be large enough to support facilities developed exclusively for them. Domestic tourists could spell the difference between profit and loss for some hotels, resorts, restaurants, etc., and could lend an element of stability to the tourist industry that might otherwise be lacking.

3) For most developing countries, the travel expenditures of their nationals abroad surpass their receipts by a wide margin. Indians traveling overseas in 1964, for example, spent \$104 million, against \$23 million spent in India by foreigners. In Venezuela, the figures are \$78 million and \$6 million, respectively; in Nigeria, \$11 million and \$1 million in 1965. One way to reduce these disparities is to reduce the need to go abroad by developing local travel and vacation facilities, although the large proportion of international travel unconnected with tourism per se would not permit complete elimination of overseas travel by nationals of less developed countries.

4) One of the signs that national development plans are succeeding will be rising per capita incomes. As incomes rise, so will interest in travel. While few will be able to afford foreign travel, demand for local travel facilities will, and should, rise. "Democratization" is the goal in tourism, as elsewhere.

5) The "multiplier" effect operates with respect to domestic tourism as well as international. The contribution of tourism to development may be especially important for the out-of-the-way areas in developing countries that contain points of historic, cultural, scenic, or sports interest but little else in the way of an economic base.

EXPORT PROMOTION

NATIONAL POLICIES FOR EXPORT PROMOTION

Shu-Chin Yang

[Policies designed chiefly for protecting a country's balance of payments may not be the right ones for promoting exports. A realistic exchange rate might reduce the need for some complicated export-promotion measures and enhance the effectiveness of others.]

Most developing countries are facing the important problem of how to overcome the external trade and payments constraint and thereby grow faster than they have been able to do. An increase in the flow of external capital will be of great help. But unless external capital is provided largely in the form of grants (currently tending to decrease), it cannot be the final answer, for external loans have to be serviced and amortized—in other words, they must eventually be paid back with goods and services. A more basic solution, therefore, lies in trade: import substitution and export expansion.

It is conceivable that import substitution can be a natural process as the economy grows. However, an important condition for successful unprotected import substitution is that the country's export trade should not lag far behind. Unfortunately, this is not the situation of the great majority of today's developing countries and they have to consider what are the national policies which can best foster the process of import substitution and export expansion.

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The Current Problem

The traditional issue of free trade versus protection is irrelevant to the problem of external trade and the payments constraint on growth in the developing countries today. Being unequal partners in world trade and plagued with intense external difficulties, free trade would clearly not be feasible for them.

Less developed countries already use a number of control measures to encourage import substitution and exports. For the most part, these measures have been introduced haphazardly, on a piecemeal basis, to meet emergency situations. As incentives have been piled on incentives and controls on controls, the situation has become chaotic. Thus, the question now is not how to justify protection and controls, but rather whether the measures adopted make any collective sense.

The answer cannot be simple, for many countries have adopted more than one kind of control—usually a combination of two or three or even more of such measures as tariffs, subsidies, import surcharges, multiple exchange rates, quantitative restrictions, tax and credit incentives, etc. Some aspects of these measures relate primarily to import substitution, others to export promotion. Only the latter will be considered here. Export promotion presents a special problem because of competition on the world market. In this connection there is also need for government assistance in marketing, research, credit, insurance, etc. In searching for a rational solution, one has first to examine the individual measures one by one.

Incentives to Offset Disincentives

In the developing countries, many "export promotion" measures simply offset the unfavorable effects on exports resulting from the operation of other trade and exchange policies. When an overvalued exchange rate is maintained and quantitative import restrictions are applied, the export sector tends to be badly squeezed. Local currency receipts per unit of foreign exchange are reduced, while costs tend to increase because prices of the inputs used in the export industry tend to rise. If, in addition, general inflation prevails, the cost-price structure of the entire export sector tends even more to be out of step with world markets. In such a situation, exports other than traditional primary commodities with high comparative advantage tend to be most adversely affected. To create new exports and to increase export diversification is next to impossible.

An overvalued exchange rate amounts to a disguised, uniform ad valorem tax on exports. It draws resources away from the export

sector and redirects them to the domestic sector. To correct the situation while still preserving the overvalued exchange rate, some developing countries, such as India, imposed an excise tax on commodities catering both to domestic and export markets. This policy aims partly at increasing domestic prices of the export commodities, reducing domestic consumption and thus making larger exportable surpluses available. However, this immediately conflicts with the objective of a low cost of living, one of the main purposes of an overvalued exchange rate. Furthermore, it may not much help the production and exportation of the commodities because the amount of domestic currency obtained per unit of dollar export remains the same. This appears to be a defensive measure rather than a positive one.

The disappointing export performance of developing countries may also prompt the introduction of other export promotional measures such as subsidies, rebates of excise tax, concessions on income tax, concessional supply prices to exporters, concessional freight rates, etc. But, again, all these small and complicated incentives and controls are needed mainly for offsetting the unfavorable effects of an overvalued currency. How much simpler it would be to do away with the overvaluation!

Multiple Exchange Rates

A major and significant step towards the correction of currency overvaluation is the multiple-exchange-rate system. A common feature of this system, on the export side, is the "exchange retention scheme" or "export bonus scheme," whereby the exporter does not surrender his entire exchange earnings to the monetary authority at the official exchange rate, but is allowed to keep a certain proportion. He can either sell the retained portion on the free market at a higher exchange rate or use it for import purchases. One variation of the scheme is to issue exchange certificates for some portion of the exchange earnings to the exporter, who is in turn allowed to sell the certificates on the market. The monetary authority can exercise control over the issue of these certificates and smooth out any drastic fluctuations in their price.

Strictly speaking, the "favorable" treatment given to exports under this scheme is not a true "bonus" to exporters, if the effective exchange rate (weighted average of the official and market rates) is still below "the equilibrium rate." The so-called "bonus" is merely an offset to currency overvaluation, and the degree of offset depends on the amount of "bonus" given. Nevertheless, this arrangement appears better than a "currency overvaluation-cum-quantitative restrictions" system.

Generally, more favorable exchange rates are applied to minor and new exports, and less favorable rates to traditional exports. The underlying reason is that the traditional exports can compete well in world markets. Since their supply is rather inelastic, unfavorable exchange rates would not greatly reduce the output and exportable surplus. Meanwhile, the spread between the unfavorable exchange rates on such exports and the higher exchange rates on imports gives rise to government revenue. But if this is the case, perhaps a combination of an "equilibrium exchange rate" with explicit export taxes on traditional exports would be better, for the tax can be tailored to the individual situations of the commodities concerned (i. e., the particular elasticities of demand). Also, it can be based on a sliding scale if world market prices fluctuate violently. The application of more favorable rates (than the overvalued official rate) to minor and new exports tends to stimulate export diversification. Of course, the actual results also depend on supply possibilities.

The Importance of a Realistic Exchange Rate

It is admittedly difficult to determine the equilibrium exchange rate, for this depends on such numerous factors as the price levels of domestic and internationally traded commodities, the level of employment, the wage level, the interest rate and its structure, tariffs, and the degree of trade restrictions that prevail in the country in question and in its trading partners. This is not the place to undertake a theoretical discussion of the determination of the equilibrium exchange rate. In fact, the developing countries today are not so much interested in any equilibrium exchange rate as in a realistic rate which at least does not hamper, if it does not encourage, exports.

A realistic exchange rate would not only move existing exports but also make it possible for new exports to emerge, in agriculture as well as in manufactures. Thailand, for example, produced very little maize before 1956, but by 1962 had become the fifth largest exporter, with exports valued at \$24 million. Its maize export goes chiefly to Japan, where the livestock industry has developed rapidly. The fact that this export opportunity has been translated into a profitable domestic operation is due largely to the existence of a realistic exchange rate. Such an opportunity will be missed if the exchange rate is overvalued.

With suitable devaluation, government trade controls can probably be greatly reduced. With light trade controls, what constitutes a realistic exchange rate depends, among other things, on the level of import duties and of export subsidies. Despite its vagueness, the term "realistic exchange rate" suggests that the existence of such a

rate will reduce the need for some complicated export-promotion measures and increase the effectiveness of others.

Some Positive Export Promotion Measures

Almost every developing country has adopted some sort of policy to encourage industrialization. Apart from measures relating to protection and priorities for obtaining import or exchange licenses for purchases of producer goods from abroad, a policy might include tax concessions, low-interest loans, priorities in allocating producer goods, establishment of industrial estates, etc. These general measures are normally applied to all industries, whether producing for domestic markets or for exports. What we are interested in here are, however, those measures directly concerned with export promotion.

Import-duty rebates and export subsidies. Duties on imported materials, parts, and components tend to increase the cost of production of export commodities. A rebate on these duties will reduce the burden on export industries and increase their competitiveness abroad. Many developing countries are now using this device. However, a rebate of duties on imported materials may discourage the production of domestic materials if such potentiality exists in the economy. Thus, the advantage of promoting an export industry has to be weighed against the advantage of import substitution by other industries.

Often, import substitution will lead to new exports, as has been the case in Taiwan, India, South Korea, Pakistan, and Thailand. After expanding to supply the domestic market, further expansion into the export market may enable producers of import substitutes to operate on a more economical scale at reduced average cost. Meanwhile, a successful period of learning can also result in an increase in efficiency. When such a stage of maturity is reached, a shift from protection against imports to subsidization for export may be in order.

Research. Export promotion efforts will be better directed or more pointed if external market possibilities and internal production possibilities can be identified. Research is extremely useful and will probably have to be undertaken by the government in developing countries.

The contribution of research to development in general, and export promotion in particular, may be illustrated by the vertical integration of sugar and its related industries in Taiwan. Sugar is a major export commodity; its exports are organized by Taiwan Sugar Company, the state trading agency. The Company has undertaken

successful research to increase the yield of sugarcane and to shorten the crop-growing period. In 1963, the Economic Survey of Asia and the Far East noted that the Company

requires or encourages sugarcane farmers to raise pigs, making use of the waste of sugarcane for feed and the manure of pigs for fertilizers. It has set about improving the breed of pigs, and has established an animal feed plant as well as workshops to process the ham and other products for export. Yeast, alcohol, and monosodium glutamate are made from sugar molasses, while bagasse boards and particle boards for construction and furniture are produced from sugarcane fiber, both for import substitution and for export.

The Taiwan Sugar Company also manufactures insecticides and agricultural pesticides. As an ingredient in animal feed, aureomycin is being produced from molasses. Research on by-products, such as cane wax, is also conducted by the Taiwan Sugar Experimentation Station. In addition, because of its interest in the development of Taiwan's east coast and in the utilization of available labor during the off-season for sugarcane milling, the Company has chosen pineapple as a supplementary crop, promoted pineapple planting, and established a pineapple cannery for export. About one-tenth of the population of the entire province obtain their livelihood either entirely or partially from the activities of the government-operated Taiwan Sugar Company. Another example is Taiwan's export of French mushrooms. Production of French mushrooms in 1960 was negligible, but in 1963 export of canned French mushrooms reached \$15 million, and Taiwan became the world's largest exporter.

Both the Taiwan and the Thailand examples suggest that possibilities of export diversification exist not only in manufacturing but also in agriculture. Once attention is directed towards export markets, there appear to be ample opportunities.

Marketing. Ignorance about foreign markets, tastes and preferences of foreign consumers, marketing techniques, etc., are practical handicaps to successful export promotion by developing countries. Small volume of sales, lack of funds, and uncertainty of the benefits of advertising are the main reasons why private businesses in developing countries are generally shy of aggressive marketing. In these matters, too, the government can often plan an important role in assisting the private sector by providing information about foreign markets, by undertaking foreign market research, by providing training facilities, etc. The government may also take the lead in organizing private businesses for joint action in marketing abroad. All these measures tend to result in economies of scale in marketing.

Standardization and quality control are necessary steps in export promotion; foreign markets can easily be spoiled if products of uneven quality fail to meet buyers' specifications. In addition to strict controls and inspection, the government should also educate private businesses and encourage them to organize themselves and exercise voluntary controls.

Export credit. In the developing countries, the financing of exports of primary products generally requires only short-term credit of less than six months. Such credit has traditionally been provided by the commercial banks. For those developing countries which are beginning to export manufactures, and especially machinery and durable goods, such credit facilities are apparently inadequate; the financing of manufactured exports generally requires longer-term and more sophisticated arrangements. Competition in exports of manufactures, especially engineering products, on the world market is particularly severe, and in this competition the provision of export credit is an important element. The developing countries are clearly at a disadvantage, for they are newcomers in the field and they suffer from shortage of capital, high interest rates, and lack of adequate financial institutions.

In order to encourage existing financial institutions, including commercial banks, to finance manufactured exports, refinancing facilities at reasonable terms should be provided either by the central bank, by an existing agency, or by a new national agency. This has been done in several countries. [see p. 102] In general, when the volume of manufactured exports becomes large and tends to increase continuously, the needs of export credit will also become voluminous, varied, and continuous. This may be the time for creating a specialized export credit institution to coordinate existing activities, to mobilize financial resources for export finance, and to develop new instruments and methods of financing.

Risk insurance. Another obstacle to exportation is the risk of nonpayment by foreign customers. Risk insurance, which has become almost an integral part of export credit, strongly influences the availability and cost of export credit. This is particularly important for manufactured exports from the developing countries, for the credit involved is medium or long term and the market catered to is usually new and unfamiliar. Commercial risks may take the form of protracted default on payments or insolvency on the part of the buyer. These risks may not be heavy for traditional exports with established market and credit channels, but can be large for new exports. Since commercial risks relate only to individual transactions, an insurance scheme on an actuarial basis may not be too difficult to establish. However, because this is a new field in the developing countries, it may require government or joint government-private action to initiate such insurance agencies.

Export credit is particularly susceptible to transfer risks. A delay or prevention of transfer of payments by the buyers may arise from exchange or import restrictions in an importing country. This affects all the exporters. Similarly, political risks resulting from war, revolutions, strikes, etc., in a given importing country also affect all exports. Some political risks may, however, affect only individual contracts, like default of payments or arbitrary cancellation of orders by foreign governments or foreign public corporations. Risks due to natural calamities like floods, earthquakes, or typhoons may be more diversified than pure political and transfer risks. Nevertheless, all these risks are difficult to insure on an actuarial basis, and hardly any private agency would venture into this kind of insurance business. In one way or another, it has to be a government or an international undertaking.

Summary and Conclusions

Most developing countries today are confronted with the dual challenging tasks of how to grow faster and how to overcome their balance-of-payments difficulties. It is recognized that an increase in the inflow of external capital and a removal of international trade obstacles will contribute greatly to the accomplishment of these tasks. This paper, however, deals only with domestic policy with respect to import substitution and export promotion.

Import substitution and export diversification are important and integral parts of the growth process of developing countries. Through import substitution and export promotion, a developing country not only saves and earns more foreign exchange, but also broadens its production pattern, creates more employment, acquires new skills, etc. The concomitant development of resources tends to change the relative supply and prices of factors of production and consequently alters the comparative advantage position. Successful import substitution and export diversification will contribute substantially to the achievement of viable and self-generated growth.

However, as latecomers in industrialization and economic development, less developed countries are faced with many obstacles to import substitution and export diversification: markets are small; they lack basic economic facilities, modern technology and skills, modern business organization and marketing techniques, etc. One can therefore hardly expect them to compete outright with the older industrialized countries. The state must provide some support to the new, infant industries. If international payments were balanced, or if there were strong world demand for some of the country's exports, the problem of financing and fostering import substitution and export diversification would be relatively simple. For some

years, however, exports of developing countries have been sluggish and their balances of payments have been weak. Thus, when starting to embark on development programs in the mid-1950s, many of them had already adopted trade and exchange restrictions to safeguard the balance of payments. This complicates the choice of policies for effective import substitution and export promotion.

Policies for defending the balance of payments do not necessarily conflict with policies for effective import substitution and export promotion. Indeed, these two kinds of policies often move in the same direction. For instance, a tariff which protects domestic production also helps reduce balance-of-payments pressure. In some cases, however, policies designed chiefly for defending the balance of payments may not be the right policies for promoting exports or for protection in the long run. It is from this viewpoint that the various national policy measures are examined.

Many developing countries have resorted to quantitative restrictions to safeguard the balance of payments, while letting the exchange rate remain at an overvalued level. This has given strong incentives to domestic production for import substitution. On the other hand, exports, particularly potential exports, are seriously discouraged by the overvalued exchange rate. Quantitative restrictions, while powerful in relieving the payments gap, in the long run seem incompatible with efficient import substitution or export diversification.

Many developing countries have adopted multiple-exchange-rate systems. Whether the effect is to discourage or encourage exports depends on the specific exchange rates applied. Compared with quantitative restrictions, this system relies more on the price mechanism and less on administrative decisions, but its effects on the allocation of resources are still far from satisfactory.

In the initial stage of development, strong incentives are needed to induce new ventures. Later, as the private sector shows more initiative, a review of the incentive measures is in order. When the exchange rates are finally unified in a single, more realistic rate, the disguised taxes and subsidies created by the multiple exchange rates should be re-examined and, wherever desirable, should be incorporated in subsidies, tariffs, and other taxes. A realistic exchange rate is particularly important for export promotion, for many of the incentives offered to exports—such as exchange bonus or other similar schemes—are needed only to offset the adverse effects on exports arising out of an overvalued exchange rate.

Subsidies can be used to promote import substitution as well as export diversification. Owing to budget deficits, however, not

many developing countries can afford to grant subsidies. In general, rebates of import duties on producer goods used in the export industries will help promote exports.

Many developing countries, particularly those with unified exchange rates, have begun to examine their tariff systems from the point of view of protection for import substitution. The level of tariff protection can be tailored to meet the specific situation of each individual industry. In setting up protective tariffs, it should be borne in mind that the effective rate of protection is not the ad valorem tariff rate on the price of the product but the ad valorem rate on the value-added. The tariff structure should also contain some flexibility. As the economy grows, the process of import substitution can go deeper, from manufactured consumer goods to raw materials, semi-finished products, or even capital goods. Sooner or later, a stage may be reached where tariffs on such intermediate goods as the country might eventually produce economically will have to be increased, while tariffs on light manufactured goods already close to economical production may gradually have to be reduced. The latter is particularly important, because many industries, after succeeding in import substitution, will be ready to export part of their production. Their efficiency must be further improved in order to compete in foreign markets. In this dynamic approach to a tariff policy, it is important to examine the individual industries carefully in deciding the tariff level and the time scheme for gradual reduction. A spread of high tariffs among all industries tends to push the costs of production to all industries higher.

In addition to trade and exchange policies, most developing countries also apply many other measures to assist industrialization, particularly tax concessions, accelerated depreciation, low-interest credits, etc. Generally, industries that save and earn foreign exchange enjoy priorities in receiving these aids. The effects of these measures have to be weighed against the effects of trade and exchange measures. For instance, the positive effects derived from tax and other incentives may be largely offset by the negative effects of an overvalued exchange rate. Thus, one has to be concerned with the total net effect of all these measures as well as the interrelation between them. For example, in considering the height of a protective tariff for a particular industry, one has to take into consideration the other assistance received by that industry.

The various controls, incentives, and forms of assistance for import substitution and export promotion are usually offered separately by different ministries and agencies of the government as well as by the central bank. Usually, there is no single organization to coordinate these measures. Clearly, this power should be vested in the cabinet headed by the chief executive. But the head of

the cabinet must be advised by some agency charged with making thorough studies and formulating proposals. The planning agency appears to be in the best position to undertake these duties, which are closely related to plan implementation. Since many of these measures are the responsibility of the central bank, the finance ministry, or the ministry of trade, the agency charged with coordination should work closely with these agencies, or establish a joint working party to carry out the task.

[Excerpted from "National Policies for Import-Substitution and Export-Promotion," Planning the Export Sector: Techniques, Problems and Policies: Report on the First Inter-regional Seminar on Development Planning, Ankara, Turkey, 6-17 Sept. 1965. New York: UN, 1967, \$3.50. UN Doc. No. ST/TAO/Ser. C/91. Sales No. 67. II. B. 5.]

EXPORT CREDITS AND INSURANCE AS A MEANS OF PROMOTING EXPORTS

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[Their increasing capacity to export industrial products has led some developing countries to introduce export-credit schemes along the lines now popular in developed countries for promoting exports. The Inter-American Development Bank's program for refinancing intra-Latin American exports is particularly interesting.]

During the period immediately following the Second World War, developing countries tended to concentrate their industrialization efforts on import-substitution industries rather than on export industries. An increasing awareness of the need to diversify and expand exports in order to finance economic development programmes has, however, contributed to a change in this attitude.

From 1955 to 1961, exports of manufactures from developing countries increased at an annual rate of 6.5 percent. In many of these countries, current development programmes call for an accelerated rate of export growth, with a significant role being assigned to manufactures and semi-manufactures. For example, in Ethiopia, processed materials in the form of leather and leather goods, building materials, and chemicals are expected to represent about 6 percent of exports by the target year. In Ghana, timber products and aluminium are expected to increase in importance during the plan period. In India, the plan calls for a substantial increase in exports of manufactures, with chemicals and engineering goods supplementing traditional textile products. In the United Arab Republic, the relative importance of manufactured goods—largely textiles and chemical products, but including some metal products—is expected to increase from 21 to 31 percent of aggregate exports over the plan period.

In addition, many developing countries have come to realize that, given the limited size of their domestic markets, they must find other outlets for their industrial products if optimum production levels are to be attained. Consequently, they have been paying increasing attention to the opening up of new export markets as well as to the consolidation of existing ones, both within economic-integration areas and outside of them.

In their efforts to increase their export capacity and diversify exports of such non-traditional goods as chemicals, light engineering products, transport equipment, and other capital goods, developing countries must face competition from traditional suppliers. As this competition is not confined to price, quality, and delivery period, but extends to the possibility of offering deferred payment, suppliers in developing countries are feeling an increasing need for financing facilities that will enable them to compete more readily with exporters in other countries as far as credit maturities are concerned.

Export Credit Insurance

The experience of the developed countries has shown that the granting of export credits by suppliers, and the financing of such credits by the banks, are largely dependent on the availability of export credit insurance. Protection provided by such insurance is particularly significant in the case of developing countries; the intensification of their industrialization means that many new traders, unfamiliar with export practices, will enter the export field, and many new lines of business and new markets will be developed. Moreover, since in most cases credits are granted on the basis of the exporter's financial standing rather than on the soundness of the export transaction, the provision of export-credit insurance may result in a reduction in the cost of financing export credits, enable existing exporters to expand their export business, and make it possible for other entrepreneurs—particularly small ones—to whom financing facilities will be more readily available, to enter the export field. Hence the increase in their capacity to export industrial products has led some developing countries to contemplate introducing export credit insurance. Such schemes have now been institutionalized by the governments of Brazil, India, Israel, Mexico, and Pakistan. Furthermore, experts in 1964 recommended that the Inter-American Development Bank (IDB) consider promoting a regional scheme.

Operating of an export-credit insurance scheme on a self-supporting basis presents special problems in a developing country. The volume of exports which would be available for insurance is as yet relatively small in most of these countries. In these conditions,

an insurance scheme may have difficulty in securing an adequate spread of risks as well as in maintaining an effective credit information service and in covering its administrative costs. Also, premiums cannot be too high, since the added cost might increase the sale price of the goods to an uncompetitive level; or, if the exporter should bear the cost himself in order to secure the order, the added cost might reduce his margin of profit, which may already be dangerously small. If, over a certain period, premiums should fail to cover administrative costs and claims, governments would be obliged to make up the deficit, with a resulting strain on their already limited financial resources.

Export-Credit Financing

Although export-credit insurance is frequently a prerequisite for bank financing of export credits, the provision of such financing depends in the first place on the availability of bank resources which can be mobilized for that purpose for the required maturity periods and at acceptable interest rates. The amounts of available banking resources in the developing countries are more or less adequate to meet short-term export-credit requirements for the present and the immediate future, but the high level of interest rates may impede their effective use.

In the case of transactions involving credits with maturities exceeding six months, an exporter in a developing country may have difficulty in securing financing even if he has insurance coverage. Such medium-term and long-term credit facilities as exist are often devoted to the financing of high-cost housing at very high interest rates. In many cases, exporters have had to secure medium-term funds through renewal of short-term credits, but this method will become increasingly inadequate as exports of durable goods expand and the need for lengthened deferred-payment commitments grows more intense.

In an attempt to remedy this situation, the governments of some developing countries (including Argentina, Brazil, Chile, India, Mexico, Nicaragua, and Peru) have initiated medium-term export-credit financing schemes. Since developing countries, however, are severely limited in the amounts of long-term funds they can lend abroad, there is a real question as to the extent to which they can enable their exporters to compete in credit maturities and rates with those of the industrialized countries.

In response to this problem, the IDB has initiated a programme for the refinancing of intra-Latin American exports. This is a novel experiment which should be of special interest to other developing regions.

Refinancing of Intra-regional Exports by IDB

In 1963 the Board of Governors of the Inter-American Development Bank set up a programme for the refinancing of medium-term export credits for intra-regional exports of capital goods. The programme (which does not encompass export-credit insurance) came into operation on 1 January 1964. Its fundamental objective is "to stimulate the development of Latin American basic industry through an expansion of intra-regional trade."

An initial sum of \$30 million has been earmarked for the programme. Under the governing regulations, the maturity periods of the export credits to be financed vary between six months and five years, according to the type of goods involved, their unit value and the total value of the transaction. The five-year limit may be exceeded in exceptional cases in order to enable exporters to meet international competition. Only capital goods normally subject to medium-term financing may be financed under the programme. The IDB issues a list of eligible goods which is open and subject to periodic amendment, especially in the light of newly developed export capacities of member countries. Specifically, goods must originate in Latin American member countries of the IDB. Goods containing components not manufactured in such countries are eligible if the final process which substantially transforms the goods has taken place in a Latin American country and if the value of the imported components is less than 50 percent of the value of the finished product.

National agencies specially designated for that purpose by the member countries supervise compliance with the regulations at the national level, particularly with regard to the nature of the goods exported, their origin, the maturity period of the transaction, and the legality and validity of the export-credit documents. The agencies are also expected to bear the financing burden for a certain portion of the credit (see below) and to guarantee all the instruments they submit to the IDB for financing. The Inter-American Development Bank carries out its financing operations by granting credit lines to national agencies; the latter, in turn, issue promissory notes to the order of the Inter-American Development Bank on the basis of the credit instruments issued by the importer and discounted or rediscounted by the national agencies in the exporting country.

The IDB credit lines may be used to refinance up to 70 percent of the invoice value; unless more favourable conditions are offered by competitors, the importer must make a down payment of at least 20 percent of the invoice value, the remainder being financed by the exporter (out of his own funds or through parallel financing) and/or

by the national agencies. The rate of interest charged by the IDB for refinancing is never less than that charged for other operations financed from its ordinary capital resources.

The volume of business carried out under the IDB programme is shown in the following table:

Inter-American Development Bank
Refinancing Programme:
Movement of Funds as of 30 September 1966
(Millions of dollars)

National agency	Credit line	Disbursement	Repayment
Banco Central de la Republica Argentina	3.0	1.5	0.3
Banco do Brasil	3.0	1.5	0.2
Banco Central de Chile	2.0	--	--
Nacional Financiera de Mexico	5.0	3.2	0.2
Banco Nacional de Nicaragua	1.0	--	--
Banco Industrial del Peru	1.0	0.3	--
Total	15.0	6.5	0.7

A wide variety of capital goods has been exported under the programme. For example, Argentina has exported farm machinery, textile machinery, telecommunications equipment, metal-working machinery, tools, and equipment to Chile, Colombia, and Mexico; Brazil has exported vehicles to Central America and steel matrices for stamping car bodies to Argentina; Mexico has exported machinery for the manufacture of structural steel to El Salvador and steel pipe, distillation towers and columns, pressure tanks, and metal structures to Argentina; Peru has exported fishing vessels to Panama.

The Bank is currently endeavouring to assist other member countries in setting up the necessary machinery for participation in this scheme.

Proposals for Action

While export-credit insurance and export-credit financing schemes have undoubtedly proved to be effective tools in the export promotion programmes of the developed countries, the considerations outlined above tend to show that introduction of similar schemes in developing countries is a more complex undertaking.

There is a growing need for and interest in systematic study of the problems and possibilities of such schemes, with emphasis on their possible contribution to the promotion of exports from the developing countries. Since a number of developing countries have already established export-credit and export-credit insurance schemes, such a study might well start from an analysis of the methods and effectiveness of the schemes already operating, as a basis for their possible improvement and their adaptation to other developing countries.

The experience which the Inter-American Development Bank is acquiring in the field might, similarly, provide a starting point for an enquiry into the role which might be played by the African and Asian Development Banks in helping their member countries to establish export-credit insurance and financing programmes.

[Excerpted from "Export Credits and Export Credit Insurance as a Means of Promoting Exports by Developing Countries," Export Credits and Development Financing, Part I. New York: UN, 1966. 43 pp. UN Doc. No. E/4274 or ST/ECA/95.]

SIMPLIFYING EXPORT DOCUMENTS

Capital (Calcutta)

[A multiplicity of export forms involves considerable duplication and waste of time, effort, and money. Experience has shown that substantial savings are possible.]

Exporters have always complained of the multiplicity of export documents. The amount of paperwork is dictated, by and large, by the requirements of governments, commerce and industry, and banks, because exports have to be financed by banks and the export proceeds have to be surrendered to them.

At the suggestion of the Central Ministry of Commerce, the Indian Institute of Foreign Trade has undertaken a study of export documents with a view to simplifying the paperwork. The Institute has collected at least fifty documents and forms, only a sample of the total, which have to be filled by exporters and by various other agencies for shipping goods, obtaining credit, claiming export subsidies or assistance, and insuring various risks.

The Institute has received considerable guidance from work already done by other national and international agencies. Sweden, followed by her Scandinavian neighbours, prepared a national standard layout for all seaborne trade documents as early as 1955. The savings were worthwhile; one large exporter saved 70 percent in documentation costs, another cut his export department staff from 51 to 38, still another was able to transfer seven typists to another department.

The UN Economic Commission for Europe, with the co-operation of the International Chamber of Commerce and the International Chamber of Shipping, has produced an E. C. E. layout key as a basis

for the design of documents for seaborne exports. In Britain, the Board of Trade laboured for two years, from 1962 to 1964, to produce similar export documents. The Joint Liaison Committee on Documents used in international carriage of goods published, in 1965, a newly devised system of preparing export documents, offering considerable economies. The Commission on Banking Technique and Practice set up by the International Chamber of Commerce has also made a beginning in this direction by evolving standard forms for opening documentary credits.

There is one basic distinction in all the export documents. There are the consignment-based forms, which are controlled and issued by governments or chambers of commerce, etc., and dealt with by banks and insurance companies. On the other hand, there are the invoice-based forms designed to meet special internal and commercial requirements. Efforts to establish the standard pattern are confined to the former set of forms. But they not only open the way; they also provide incentives for reforming many domestic documents in order to achieve maximum economy.

It is easy to see that the greatest source of trouble is the wide variety of sizes, shapes, and designs, which necessitates the entry of the same information over and over again. The process is not only unnecessarily costly; it also leads to errors.

The basic idea in simplifying export documents is to eliminate the repetitive copying of the same information in various forms at different places. In the redesigned forms of the same size and quality of paper, common items of information occupy the same relative position on each form, so that time and energy is saved by typing the required information simultaneously on each of the forms.

The principle is thus that of an aligned series of forms. With the standard design, pattern, and layout, it becomes practicable to record all or most of the information on a single "master document." Any details that are not required on any particular form in the series can be omitted by techniques easily available in modern machines. The advantage lies in the fact that only one document needs to be typed; and once its particulars have been checked, the accuracy of all other forms derived from it is assured. Information can be added or amended on the "master document" at any time, and can be added to any particular form, if required.

In the system followed by the UK Board of Trade, the following eight forms are included in the aligned series based on the single "master document": the bill of lading, customs entry form, exchange control form, port rates schedule, shipping note, dock rates and town dues bill, certificate of origin, and certificate of

insurance. These constitute a nucleus sufficiently large to establish the advantages of the new system.

In the UK and other countries, the new system must be workable in small offices on simple reproduction equipment—as well as in large offices using sophisticated office machines and complex technical equipment.

In countries like India, where modern office machines are not in common use, the problem is a little different and more difficult. Here one has to devise a system under which all the common information is typed on all the forms in one run and the variations are added to them separately. Yet even such a process could lead to many economies, for nearly 80 percent of the information on various export documents is the same.

Since the export forms are issued from many sources, their designs have been developed independently over the years. As a result, they differ widely in size, layout, and content. They involve considerable duplication, and waste of time, effort, and money. It is, therefore, essential that banks, insurance companies, carriers, exporters, government departments, clearing and forwarding agents, port authorities, and the import, export and exchange control authorities should co-operate in simplifying and standardizing export documents and in reducing the paperwork and its cost.

[Excerpted from "Move to Simplify
Export Documents," Capital.
Calcutta: Volume CLVII, Number
3928 (15 September 1966)
R. 1.50, pp. 617-619.]

EXPORT EXPANSION THROUGH TAX POLICY

Ronald I. McKinnon

[Replacing most business taxes with a single value-added tax would have an effect much like a currency devaluation—without its disadvantages. Besides being an excellent vehicle for subsidizing exports, the value-added tax is easy to administer, requires only a low tax rate, and is readily adaptable for granting additional exemptions in special circumstances.]

Singapore has no choice but to develop via export expansion. And yet, much of the encouragement to new industry in Singapore has taken the form of tariff and quota protection, which has provided no significant direct economic incentives for export expansion.

The Case for a Value-Added Tax

The basic idea in this paper is simple. Existing business taxes—mainly the corporate profits tax, the property tax, the payroll tax, employers' Provident Fund contributions, protective tariffs, and miscellaneous sales taxes—would be replaced with a single business tax known as the value-added tax. The tax is here hypothetically set at 10 percent, a rate which would, properly administered, bring in considerably more than the business taxes they would replace. Furthermore, the burden of tax administration would be eased and the lot of taxpayers subject to overlapping taxes improved. However, the main purpose of the change would be to exempt all exporters from the newly consolidated tax and, thus, to provide a great incentive to shift resources into export activities. A value-added tax is particularly well designed for

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giving exemptions proportional to that part of a firm's output which is exported. At the same time, exemptions from the value-added tax could provide significant, balanced protection for sales in both foreign and domestic markets for pioneer manufacturing firms. This new protection would have the advantage of being very easily administered.

The value-added tax is not an academic matter. It has already proved administratively feasible in France, where it is set at a level of 20 to 24 percent and is the major business tax. Sweden has also adopted it, replacing a number of other business taxes.

Unlike a gross turnover or gross sales tax imposed at every stage of production activity, the value-added tax is designed to tax only value actually added within each firm, and that only once. The degree of tax incorporated in each final consumer good sold at retail is uniform and is independent of the number of times the commodity and its components are bought and sold in the process of production and distribution. In contrast to the gross turnover tax, a value-added tax gives no advantage to large, vertically integrated enterprises at the expense of small firms which add only a small portion to the gross value of the goods they sell.

Value-Added in a Closed Economy

Gross sales less supplies purchased from other firms are a measure of "value-added." For an economy with no foreign trade, it is theoretically possible to impose the value-added tax directly as a uniform percentage of a firm's wages, salaries, rents, interest, and profits. There would, however, be significant accounting difficulties in determining the actual magnitude of each of these items—particularly where buildings are owned instead of rented and where depreciation allowances, the capital structure of the firm, and the salaries of the managers all affect the definition of profits. Thus, even for a closed economy, it is desirable to use gross sales less purchases of all kinds (including capital goods) from other firms as the base for imposing our hypothetical 10 percent tax.

In order to avoid a tendency for firms to understate the magnitude of their sales and overstate purchases, the French have found it convenient to levy the tax tentatively on gross sales and then permit deductions of taxes already paid on supplies purchased from other firms, as shown on sales invoices. The supplying firms have no incentive to overstate the magnitude of their sales or the taxes paid on them.

The French method of tax collection works as follows: suppose the gross sales of Firm A are \$100 and Firm A's purchases of

intermediate materials from Firm B amount to \$40; the tentative tax liability of Firm A would be 10 percent of \$100, or \$10. Suppose Firm A can produce invoices showing that Firm B has paid the full 10 percent tax on its sales to them; these amount to 10 percent of \$40, or \$4. Firm A is then permitted to deduct \$4 from its tentative tax liability of \$10, so that its actual tax payment to the government only amounts to \$6.

If some of the output of Firm A, say \$20 worth, is purchased by Firm C, then Firm C may deduct 10 percent of \$20—\$2—from its own tentative tax liability based on its own gross sales. Firm C merely has to produce evidence (on its purchase invoice from Firm A) that the full value added tax has been paid on the \$20 worth of materials coming directly from Firm A and indirectly from Firm B. The French tax authorities have found that it places no great administrative burden on the firms to produce such evidence, and such a system is considerably easier to enforce than most other taxes.

Value-Added in an Exporting Economy

When one considers the problems facing an economy with substantial exports and imports, the administrative advantages of the French system of tax collecting can be decisive. This would be particularly true where *entrepôt* trade is important.

Furthermore, if one wants to encourage exports, they can easily be exempted from our hypothetical 10 percent tax on gross sales. Under the system proposed here, exporters would also receive tax credits for any supplies purchased on which the tax had already been paid. Since exporters would have no tax liability on their own sales, they would be eligible for a full rebate on any taxes that had been paid on preceding stages. This would effectively exempt the supplying firms which exporters use as well as the export firm itself, thus encouraging the use of domestic suppliers; no special advantage would accrue to highly vertical, integrated exporting enterprises. Export firms which also sell in the local market would still pay the 10 percent levy on their domestic sales.

On the import side, all goods coming into the economy would be considered as if taxes had not been paid on preceding stages of production. Their gross import value would thus be subject to the full value-added tax. This part of the tax can be collected by customs officials. If the levy on imports is to be made, as usual, on CIF value [cost, insurance, freight], then it would have to be levied at the rate of approximately 11 percent in order to be equivalent to the domestic value-added tax rate of 10 percent. This slightly higher levy on imports is necessary because CIF value does not include the

tax itself in the tax base, whereas the 10 percent levy on domestically produced goods is levied on a base which necessarily includes an allowance for the tax itself. That is, the price that domestic Firm B charges Firm A for a particular commodity on which the 10 percent tax is levied must be high enough for Firm B to pay its tax liability out of the proceeds. (If the import tax were levied on the sales value of the imported goods inclusive of the tax itself, then the 10 percent levy would be appropriate. However, this is contrary to the usual practice of evaluating import goods and is certainly not necessary for the administration of the tax.)

Of course, imports used as intermediate inputs in goods which are later exported are effectively exempted from the import levy, since the exporter receives a rebate on all previous taxes paid on both domestically produced supplies and imports. This rule would hold for manufactured exports as well as traditional entrepôt exports.

In summary, the overall effect is for the 10 percent levy to fall on imports retained in Singapore and to fall on additional value-added that is associated with sales in the domestic market. For Singapore, about two-thirds of such revenue would actually be collected by customs officials. The import levy would initially fall on all imports—capital goods, raw materials, consumer goods, etc. However, because of the rebates given exporters, imports which "pass through" Singapore's economy and are eventually re-exported in some form would effectively be subject to no tax at all. Of course, all domestic value added in export activities would also be exempt from the tax. If the value-added tax largely replaced other important taxes, one can immediately see the powerful incentives this would give to export expansion both in the traditional entrepôt trade and in newer manufacturing activities.

Value-Added and Import Substitution

The value-added tax system as outlined above would also encourage import substitution. Some goods which had previously been imported would become profitable to produce domestically. As we have already seen, goods directly imported for resale in Singapore as consumption goods would be taxed at the 10 percent rate on gross sales value, inclusive of tax, which has the effect of an 11 percent tariff. Local suppliers of the same goods would be subject to the 10 percent value-added tax and pay the equivalent 11 percent levy on any imported materials they use. At first glance, they would be receiving no apparent advantage over imports. However, if one thinks of the value-added tax as being a replacement for existing taxes, then the net tax liability of local firms supplying the domestic market will increase very little when the value-

added tax is imposed. The effective new 11 percent tariff on competing imports for local sale might improve, on net balance, the competitive position of local suppliers of domestic consumption goods.

Since all such domestic suppliers would be "protected" by the same amount, only the most efficient of them would expand local sales to replace previously imported goods. This is much better than giving selective tariff and quota protection to particular domestic suppliers, whose costs may be far above those of competing imports and who, at the same time, may still be prodigious users of foreign exchange. Notice, too, that a uniform percentage levy on all imports is much easier to administer than differentiated tariffs and quotas, since no distinctions have to be made among commodity classifications by customs officials.

The programme proposal made here does not assume that only new firms should receive export incentives. Indeed, many established firms might well be in the best position to develop new export activities with the new incentives. In contrast, the present pioneer industries programme is confined to "new" manufacturing enterprises, with protection largely associated with production for the home market. It is doubtful that Singapore's best long-run interests are served by encouraging the proliferation of many very small firms.

Special Incentives for Pioneer Industries

The general tax structure proposed in the previous section gives strong, uniform incentives to all exporters, and uniform protection to all firms selling in the domestic market which compete with imported goods. However, suppose it is decided that additional, special incentives should be given to particular kinds of economic activity—specifically, to new manufacturing enterprises. Under the current pioneer industries programme, financing, factory sites, utilities, power facilities, and technical services are all provided on favourable terms to pioneer manufacturing concerns. These services have promoted economic efficiency and should be continued. As for other incentives, general implementation of the proposed value-added tax in Singapore would make it extremely easy to exempt pioneer firms from the new tax as a substitute for the current exemption (for up to five years) from the corporation tax and as a substitute for protection by means of tariffs and quotas. Such a change would significantly rationalize the incentives under which pioneer firms operate so as to promote much greater efficiency and expand exports.

Pioneer firms would still have to pay the uniform import levy (11 percent of CIF value) on any imported materials or capital goods they use. But, when their output is sold—either to another domestic firm or for export—they would be treated as if the tax on their own value-added had already been paid. That is, the domestic buyer would be able to claim a full tax rebate equal to 10 percent of the gross value of his purchases from the pioneer firm. This rebate would cover import taxes already paid by the pioneer firm, but it would also cover the pioneer firms' own value-added, which had been untaxed. Thus, the pioneer firm would benefit relative to non-pioneer enterprises producing similar products or relative to competing imports to the extent that it was successful in adding the gross value of the product it sold. The price the buyer "sees" for the pioneer firm's product would, therefore, be lower because of this tax concession.

Pioneer products which are exported would be treated consistently; the pioneer firm could claim a rebate for taxes already paid on imported inputs or inputs purchased from other firms; it could also claim a rebate equal to 10 percent of its own value-added, which was untaxed. Pioneer exporters would thus not only be exempted from any tax liability, but they would receive an additional 10 percent subsidy to their own value added in the form of a tax rebate. The two together would improve the pioneer firm's incentive to achieve value-added in export activities by about 20 percent relative to the existing package of taxes they would have to pay. Similarly, the effective protection given to pioneer firms' sales on the local market would amount to about 20 percent of value-added.

Suppose, for example, that a firm exporting \$100 worth of goods imports intermediate materials valued at \$60. At the rate of 11 percent CIF value, the firm would have to pay a tax of \$6 on the imports it uses, which is fully rebatable when the goods are exported. No tax would have to be paid on the \$40 of domestic value-added. Since existing taxes would, currently, come out of this \$40, and these are approximately equivalent to a 10 percent value-added tax, the new policy would amount to a 10 percent subsidy to all exporters (on their own value-added only). Pioneer firms who export would receive an additional advantage. In the example given above, not only would the pioneer firm get a \$6 rebate on the value of the intermediate materials it used, but it would also get a \$4 rebate on the extent of its own value-added. This gives an additional 10 percent subsidy or protection, bringing the total amount of protection on domestic value-added in the export activity up to 20 percent.

This method of protecting value-added in pioneer firms who are both selling in the local markets and, even more important,

exporting has significant advantages over the current "package" of tariff, quota, and corporate-profits tax exemptions for pioneer firms, which is strongly biased towards import substitution and which raises the internal price of the product, penalizes users, and lowers the effective internal market size.

For the pioneer programme as a whole, pure export firms and those producing for the local market without protection would receive an effective new subsidy. Others, now benefiting from the rate of protection given by tariffs and quotas—which is probably closer to 60-70 percent for some firms—might suffer. Overall, however, the total amount of protection given to firms under the pioneer industries programme need not fall much—if at all—although its distribution will be drastically changed in favour of successful export-oriented enterprises and against high-cost firms confined to producing in the limited local market.

The effect of incentives under the value-added tax system is to insure that the tax exemptions apply only to the value-added by the pioneer firm. Unless value is added in Singapore, firms would receive no tax benefits. In contrast, current protective tariffs and quotas are levied only on imported finished products competing with local producers, while all the intermediate products, sub-assemblies, etc., which a firm uses can presently be imported duty free. Under the present system, many firms whose main interest is selling in the local market will thus import as high a proportion of the final product as they can get away with and simply add the finishing touches in Singapore. Under the value-added system, a pioneer firm whose import content of gross sales was, say, 90 percent would pay a tax (inclusive of customs duties) of 9 percent on gross sales in the domestic market, whereas a pioneer firm whose import content was only 30 percent would pay a tax of only 3 percent. Both would receive a rebate equal to 10 percent of the gross value of export sales, but the firm with low value-added would be receiving a net subsidy of only 1 percent of its gross export sales, while the firm with high value-added would get a subsidy of 7 percent. Even though they produced identical final products, they would be subject to differential tax treatment according to their success in achieving value-added in Singapore.

The proposed tax scheme is likely to benefit firms producing intermediate goods. So far, tariffs and quotas have been largely confined to consumer goods, for fear of raising the costs of other producing firms. And yet, these industries do not necessarily provide the best opportunities for import substitution. Indeed, given the importance of "brand" names to consumers, it may be more difficult for local suppliers to break into consumer-goods markets without excessive protection than to break into the markets for intermediate goods sold to other firms.

The administration of subsidies on pioneer products can be kept extremely simple as long as all firms pay the uniform 11 percent tariff on the CIF value of all imports they use, including capital goods, raw materials, etc. Then, the government merely has to give a rebate of 10 percent on the gross value of sales of the pioneer product. This would still insure that only domestic value-added in export products was being subsidized.

Administration of the Value-Added Tax

There are administrative advantages over existing taxes in the collection of the value-added tax. An automatic cross-auditing system becomes possible to the extent that firms buy from and sell to one another. The whole tax programme could be computerized from the start, so that tax authorities could instantaneously refer to sales invoices supplied to any particular firm. In fairly small firms, the value-added tax has an advantage over the profits tax in that no distinction has to be made between the salaries claimed by the managers and the true "profit" of the firm. Furthermore, there is no way in which firms can juggle their capital structures so as to alter their tax liabilities. That is, the division of revenues between profits, interest, and capital gains does not affect the firm's value-added tax liability. Thus, many of the standard manipulative practices used to avoid the corporate income tax can themselves be avoided with the value-added tax.

[In the original article, the author discusses the application of a value-added tax to service activities, banks and insurance companies, and building construction. The ways to exclude unprocessed food products, tourist purchases, and small retailers (from whom taxes are inordinately difficult to collect) are also discussed.]

There are many reasons to support a gradual replacement with the value-added tax. They are: 1) to prevent "windfall" gains and losses to firms who have not anticipated the tax changes; 2) to permit tax collectors to "learn by doing" before the rates become high; and 3) to prevent stockpiling of imports and the building up of inventories by retailers in anticipation of the imposition of the new value-added tax in a single large jump. A simple system for introducing the tax is to begin with a 1 percent levy which is raised to 2 percent after four months and to 3 percent after an additional four months, etc., until exactly three years later the levy reaches its "final" level of 10 percent. Meanwhile, the corporate income tax, the property tax, existing tariffs, and sales taxes would be reduced commensurately.

Other Taxes

In a small country with a single governmental unit, it is feasible and more desirable to use a "single" tax system. Singapore's present multiple tax system is somewhat redundant in this respect, since it has been largely copied from countries with multiple governmental units, each needing independent sources of revenue. A uniformly administered value-added tax as a replacement for all other business taxes would be likely to remove much unfair "double" taxation that certain kinds of taxpayers now face. Economic efficiency would be increased and administrative costs reduced.

Since effective taxation on export activities would be reduced to zero, and since a considerable portion of earnings associated with some export activities are probably remitted abroad, a strong case can be made for levying a tax of some kind on foreign remittances of dividends, interest, and capital gains. The tax rate should be very moderate—of the order of 10 percent—to avoid scaring off foreign capitalists. Even with a remittance tax, foreign capital would probably find its total tax liability reduced. The remittance tax, and the value-added tax itself, should, of course, be designed to be deductible from the tax liabilities of foreign companies in their own countries, if possible.

Conclusion

How can one attempt to gauge the overall impact of a value-added tax programme on the economy? In one respect, the shift to a value-added tax of 10 percent as a replacement for existing taxes would have an effect very much like that of currency devaluation. A levy is placed on imports and a subsidy given to exporters. Fortunately, the valuation of the currency itself does not change. Therefore, there would be no problem of anticipatory capital flights or the renegotiation of foreign contractual obligations. Singapore's role as a banking centre for Southeast Asia would be undisturbed. The change in the tax structure would give the economy all the benefits of an actual devaluation without the disadvantages.

On the other hand, the permanent exemption of exporters from the tax, as well as a general rationalization of the tax structure, would be likely to have an effect which is greater than that of a devaluation. The corporate profits tax is a "perverse" kind of levy in that enterprises which are 1) large enough to be incorporated, and 2) highly profitable, bear the heaviest tax, while, small, fairly unprofitable enterprises escape. Successful exporters are generally large and profitable enterprises, and, therefore, would be given the most encouragement by the change in the tax structure to the value-added system.

Besides the direct export incentives, the value-added tax system gives the government important additional flexibility in granting special protection to pioneer industries.

There is a great need to rationalize the nature of special protection being given to new manufacturing enterprises in Singapore. The value-added tax system is almost ideal as a means of accomplishing this by making it politically and economically feasible to remove tariffs and quotas. However, the ease with which effective, rational protection could be given to new pioneer products should not be taken as license to grant exemptions on a large scale. Every exemption erodes the tax base to some degree; it implicitly increases the tax burdens of non-pioneer firms and attracts foreign and domestic resources into non-optimal uses. Only with very good reason should a new product be given pioneer status; and the only good reason is the potential of its becoming a high-volume export.

In conclusion, a value-added tax is an excellent vehicle for generating revenue because of its administrative simplicity, the relatively low tax rate which is necessary, and the well-defined nature of the tax base, which can be expected to grow proportionately to the general growth of the economy.

[Excerpted from "Export Expansion Through Tax Policy: The Case for a Value-Added Tax in Singapore," The Malayan Economic Review: Singapore, Volume XI, Number 2 (October 1966) M\$6.00, pp. 1-27.]

PROMOTING EXPORTS: SOME HELPFUL PUBLICATIONS

Both low- and higher-income countries have set up a wide variety of institutions to promote exports. It is difficult to determine the cost efficiency of these institutions. Nevertheless, planners wishing to build institutions to promote their country's exports can obtain valuable pointers from analyzing what has been done elsewhere. The Pan American Union has published case studies of five countries whose successful export-promotion institutions could, in their judgment, serve as models to their Latin American members. These are:

Policies and Institutions for the Promotion of Exports of
Manufactures; A Selected Case Study: Denmark
Mexico
Netherlands
Israel
Japan

(Washington: Pan American Union, 1964 and 1966, \$0.75 each). A Manual of Export Promotion Techniques (Geneva: GATT, 1966, 218 pp., gratis) describes measures taken by 27 countries, 8 of them from the developing world. In addition, International Trade Forum, published quarterly by GATT, regularly contains articles describing various countries' experience with the institution-building part of export promotion.

The GATT International Trade Centre has also published a 700-entry bibliography of material "important or relevant to persons establishing or enlarging the libraries of export promotion centres or trade information centres" in developing countries: A Select Bibliography for Export Promotion Services in Developing Countries (Geneva: GATT, 1966. English, Spanish, and French, gratis). The Centre invites inquiries from developing countries on marketing prospects, techniques, surveys of special products, and bibliographies, which they will work up on request.

Since export promotion usually involves winning a place in the markets of the higher-income countries, international organizations interested in the problem have investigated market structures in these countries. The Pan American Union has published two Studies in Export Promotion analyzing marketing

structures and procedures in seven developed countries for pineapple products, citrus fruits, tomato products, jams and jellies, and strawberries—all of which their members might export. These studies, The Marketing Structure for Processed Food Products, volume 1 (on the United States) and volume 2 (on Sweden, Denmark, Norway, West Germany, Canada, and the United Kingdom), are available for \$3.00 each. "The European Market for Citrus Juices," by Baard Stokke, in International Trade Forum, Supplement, II, #4 (November 1966), covers part of the same field for European countries not included in the Pan American study. As these publications show, it may be crucial for the exporter to know the place of the company with which he is dealing in its home market, the structure of demand for frozen as versus canned juices, the degree of vertical integration of the market, the tariff and quality-control regulations, and many other details that may spell the difference between success or failure of an export-expansion campaign.

The Pan American Union has studied the same exports from another point of view—how to stimulate their sales in other less developed countries. Its Potential for an Export Promotion Program for Selected Processed Foods in Central America (1965) and Production and Export Capabilities for Certain Agricultural Products in Raw and Processed Form in Central America (1966) are available free of charge and might serve as useful guides for planners in other countries.

As interest in export promotion grows, so do the efforts of international organizations to provide expert assistance. For example, the United Nations has sent expert missions to Mexico and Argentina to advise on export potential, and the Pan American Union is sponsoring courses in exporting for members of public and private sectors.

TWO STUDIES ON EXPORT CREDITS FROM HIGH-INCOME COUNTRIES

Export Credits and Development Financing, Current Practices and Problems. New York: UN, December 1966. 43 pp. UN Doc. No. E/4247, ST/ECA/95.

Suppliers' Credits from Industrialized to Developing Countries. Wash. D. C.: International Bank for Reconstruction and Development, January 1967. 33 pp. plus annexes.

The normal function of export credits is to smooth the flow of ordinary international trade. Recently, however, medium-term and, especially, long-term credits for the purchase of heavy machinery and equipment by the developing countries have become an important source of development financing. As a new UN study points out, their use has grown rapidly in the last fifteen years because the developing countries' need "for an expanding inflow of capital goods is well matched by the developed countries' interest in expanding their sales of these goods." In the press of international competition, the developed countries have increasingly helped their manufacturers to sell on credits of ever-lengthening maturities; the governments participate in insuring export credits, subsidizing their cost, and in some cases even providing the financing themselves by offering discounting facilities or lending directly to the buyer.

Two closely related reports analyzing these trends have been submitted to the UN recently. The first, an annex to which is reproduced elsewhere in this issue (see p. 100), was prepared by the Fiscal and Financial Branch of the UN Department of Economic and Social Affairs; it includes a review of the export credit and export-credit insurance facilities of nineteen developed countries of both East and West. The second, by the staff of the IBRD, describes the growth of suppliers' credits from Western countries and makes a number of policy proposals.

Export credits have serious limitations as a means of financing economic development. First, they are a relatively high-cost form of finance, with effective interest rates rising as high as 10-11 percent. Furthermore, there are indications

that goods sold on this basis may be overpriced. In addition, debt maturities may not be geared to the life span of the investment, making repayment difficult.

Nevertheless, when less costly development financing is not available, many developing countries have turned to use of export credits. The UN study lists examples of specific development projects made possible through use of export credits—among them, steel and textile mills, a telecommunications network, mineral processing plants, airports, hydroelectric installations, canals, and fertilizer plants. In fact, a number of developed countries look upon medium- and long-term export credits as their major form of development aid, and any decrease in the flow of export credits might reduce the overall flow of financial resources to developing countries.

Two major problems have arisen from the use of export credits. The increasing debt-service burden of some developing countries has placed a severe strain on their balance of payments and their ability to continue to finance their development programs. The IBRD study estimates that, as of 1965, developing countries owed an estimated \$7 billion to Western suppliers alone. This represented more than one-sixth of their total external debt and a much higher proportion of their annual debt charges. In some cases, debt crises have required the rescheduling of payments.

In addition to overindebtedness, the potential distortion of international trade resulting from use of export credits to finance development has aroused concern, particularly among the developed countries. They fear that intense competition among capital-goods producers, with its accompanying overemphasis on the credit factor, may impede the free play of international market forces and even lead to a reintroduction of bilateralism in international trade.

The Bank study makes a number of recommendations aimed at mitigating these and related problems, while retaining the advantages of this type of international finance. Recommendations directed to the less developed countries include the wider use of technical assistance in tightening central administrative systems for managing external indebtedness. The study particularly recommends that governments require buyers to obtain authorization for purchases on credit and that they maintain an effective enforcement of budgetary controls. The study also suggests ways to obtain better terms from suppliers. One is for pooling requests for export credits through domestic development-finance companies; external credits contracted in large blocks are much more likely to have favorable conditions than numerous, fragmented credits for many small enterprises. Another is for private banks to broaden

competition for national export credits, possibly through international competitive bidding; the Bank itself uses a similar technique.

At the same time, the Bank study stresses that creditor countries have a responsibility to help individual developing countries avoid assuming excessive debt on export credits. Although previous efforts at the international level to coordinate the flow and the terms of private export credits have failed—creditor countries fear that any restraint on use of export credits will only leave a void that other exporting countries would fill—the Bank study recommends that yet another effort be made to arrive at common principles. It also points to serious shortcomings in the information now available on export credits and their relationship to the total debt structure of the developing countries, and makes concrete suggestions for improvements.

Nevertheless, it is clear that the problems associated with use of export credits cannot be isolated from the broader problem of finding enough external development financing to meet the needs of the developing countries. As the UN study point out, increased availability of aid credits, as distinct from export credits, "might also help alleviate the excessive debt-service burdens of developing countries" brought on, in some cases, by excessive reliance on export credits.



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